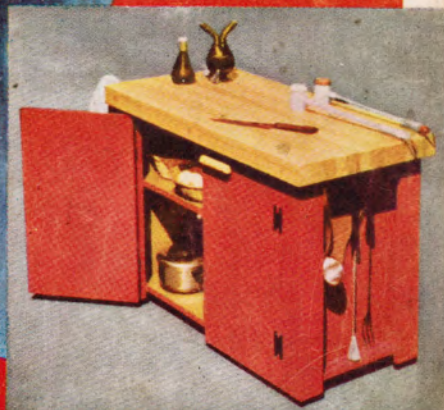


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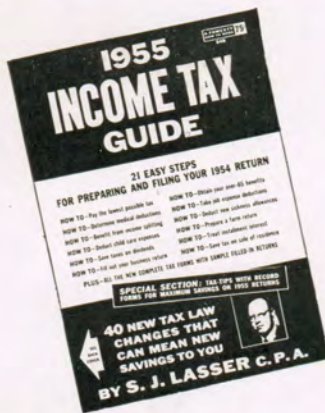
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POWER TOOL PROJECTS

YOU CAN MAKE • BY TOM RILEY

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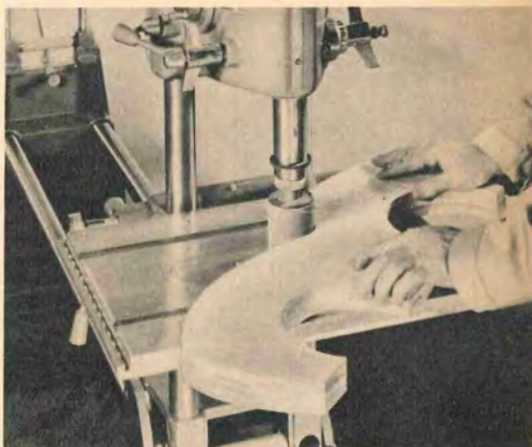
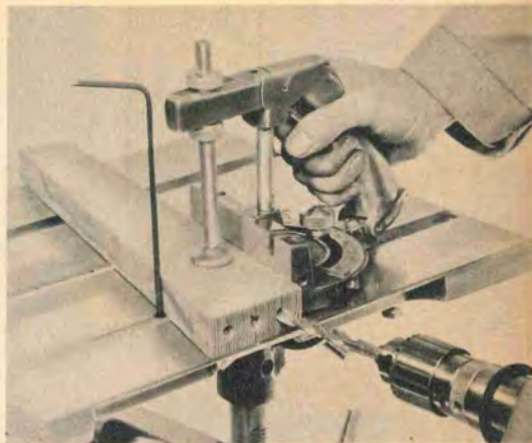
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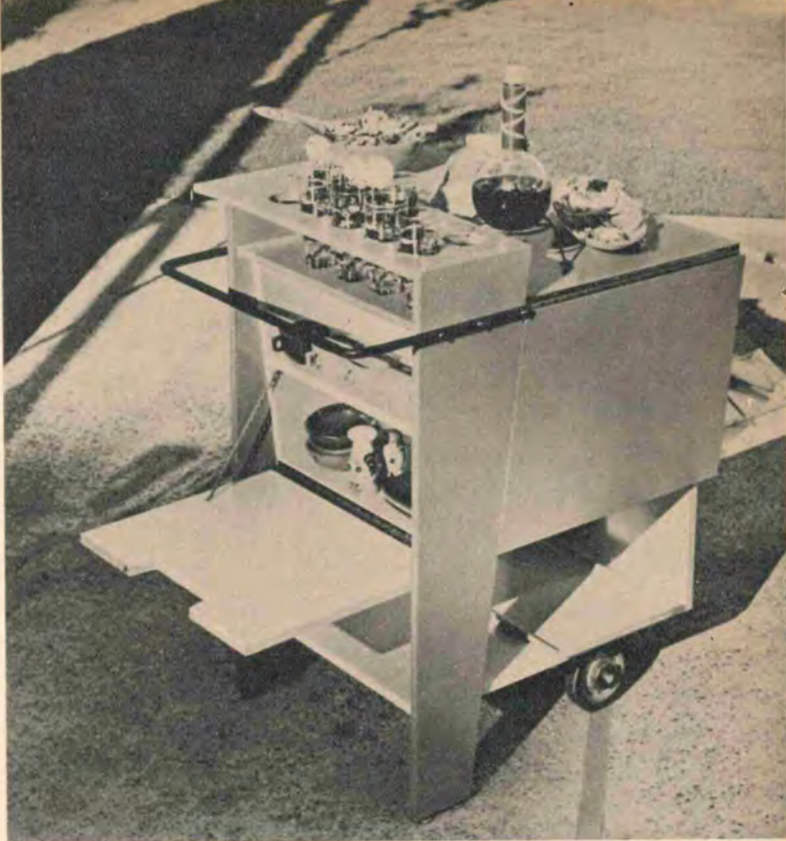
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The author wishes to fully acknowledge the valuable assistance in up-to-date technical information and design given by the following: Magna Engineering Corporation, Douglas Fir Plywood Association, Reynolds Metals Company, Oregon Lumber Company, Hardwood Corporation of America, M & M Woodworking Company, Washington Steel Products, Inc., General Electric Corporation, West Coast Lumbermen's Association, California Redwood Association, Puget Modern, Inc., Martin Fabrics Corporation, Harry Weitzer, furniture designer, and John J. Whelan, architect.



A dean of the do-it-yourself field, Tom Riley has gained fame as feature writer for *Better Homes and Gardens*, *Field and Stream* and a host of other popular magazines. He built his own home, has written more than seven hundred how-to articles and, prior to this volume, three other books: "How to Build the Ranch-type House," "Summer Jobs for Students," and "How to Build and Use Outdoor Kitchens."

INTRODUCTION

Just ten years ago, few of us thought very much of building the things we wanted in our homes—we bought them. Today, the entire nation is conscious of the home workshop and what it will produce. We are hearing the song of the saw.

Our enthusiasm for building our own furniture shouldn't surprise anyone because three things have occurred in the last few years to make it inevitable. First, the cost of good furniture has soared skyhigh. Second, the highest priced furniture, the modern, easy-to-live-with style that most of us desire, has proved much less complicated to build than the ornate styles of the past. Third, the innovation of new tools has given the average man the complete shop he needs—despite limited space and budget.

This is a book filled with examples of modern items for the home—how to build them—the kinks and tricks used by experts. Throughout, it shows the usage of power tools. None of the projects is a minor item to be completed with pocket knife and hammer. These projects were selected because modern power tools simplify good craftsmanship for everyone. You do not need experience to saw a straight line with a table saw; the machine furnishes both muscle and accuracy. To the very beginner, the drill press gives clean holes and grooves. Anyone can turn the straight tapers of today's furniture on a lathe—obtain smooth plywood edges on a disc sander—quickly produce complicated furniture joints on a horizontal drill. Add a jointer and jigsaw and you can do any job needed for any modern furniture.

And so this book is dedicated to you who have power tools, either a variety of individual tools in a large, ambitious workshop or a modern, multi-purpose tool tucked in a corner.

Tom Riley



"ANY CORNER" CABINET

If space is your problem, this handsome, triangular corner cabinet may solve it. It's surprisingly simple to make with your multi-purpose tool.

THIS "any-corner" china cabinet is almost that—requiring only a 28-inch corner of a room to snug into. It is designed to fit a corner of our modern dining rooms and dining alcoves, compact areas where ordinary china cabinets require too much floor space.

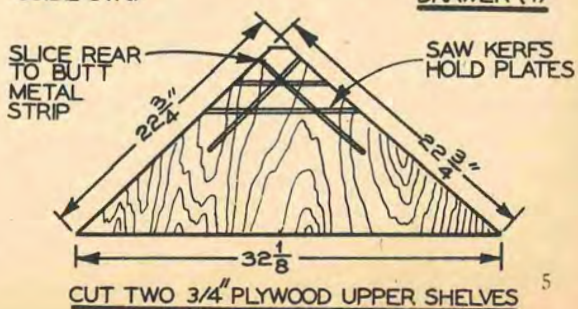
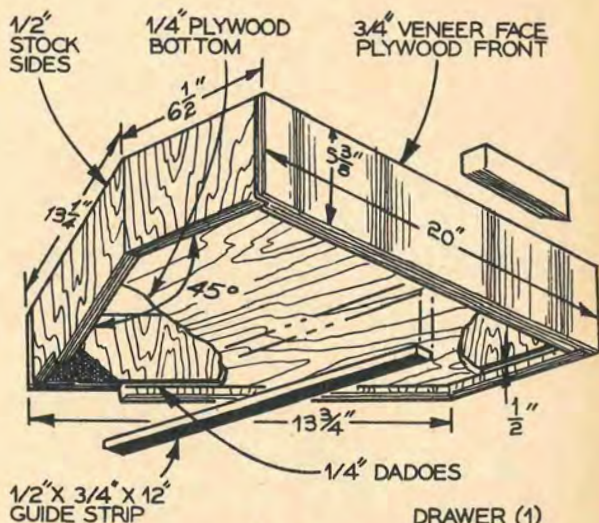
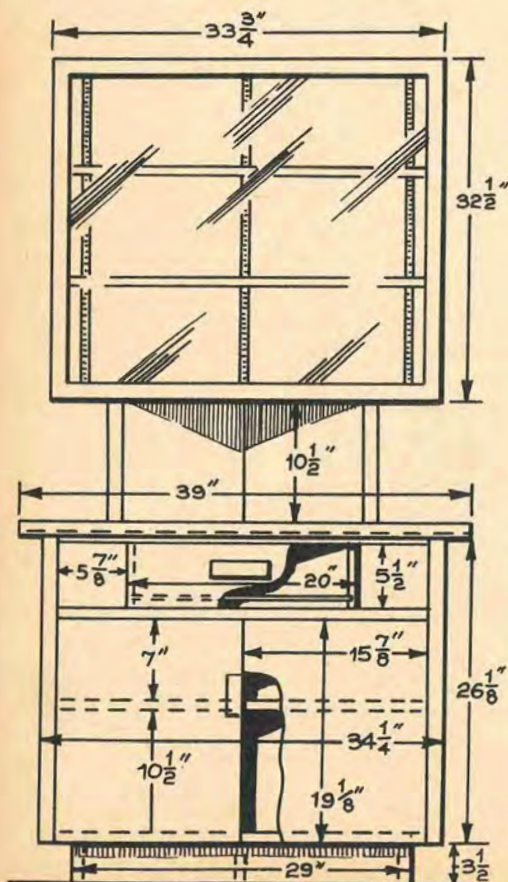
The photo gives another example—in an apartment's passageway. Here the cabinet has been tucked into a corner of the passageway area between an apartment's dining alcove and kitchen, an area that formerly could hold only a chair. It can also be placed in a bedroom hallway, with wood doors replacing the glass of the upper cabinet, to provide a modern linen closet.

The take-down design allows this cabinet to hug the walls even if the corner of

your room is not exactly plumb. There is enough give-and-take in the four parts to fit snugly, and the base moves in or out to clear any thickness of baseboard. The four-section design also helps in simplifying construction.

Upper Cabinet

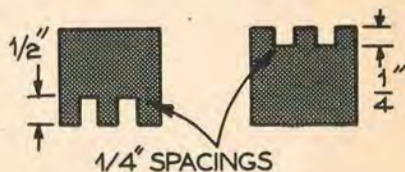
To build the upper cabinet, cut the top, bottom and two shelves to identical size of $\frac{3}{4}$ -in. fir plywood. Note that shallow saw cuts are recommended in the bottom and the two shelves to later hold dishes and the like when leaned against the cabinet sides. The front edges of the cabinet sides are cut to a 45-degree bevel; at the rear corner they have a simple butt joint. Before assembling the sides, top and bottom



GLUE BLOCKS SUPPORT METAL STRIP

3/4" STOCK TOP, BOTTOM
AND TWO SHELVES (4)

1 1/4" SQ. HARDWOOD FRONT
FACE FRAME (MITER JOINT)



GROOVES FOR SLIDING DOORS

1/2" X 23 3/4" X 33" PLYWOOD
SIDES (2) MITER FRONT EDGE

3/16" DEEP GROOVES TO
RECESS METAL STRIP

3/4" VENEER GRAIN PLYWOOD
PANELS, MITERED FRONTS

METAL PLATES
JOIN CABINETS

HARDWOOD
FACING ON EDGE



3/4" PLYWOOD COUNTER
TOP FACED WITH 1/2" X 1 1/4"

1" X 3" FRAME

1" X 4" FRAMING
IN SHORT DADOES

3/4" X 1" FACING

1/2" STOCK GUIDES (2)

3/4" X 23 1/4" X 26"
PLYWOOD SIDES (2)

1/4" X 3/4" DADOES

1 1/4" SQ. X 26 1/8"
EDGE FACING (2)

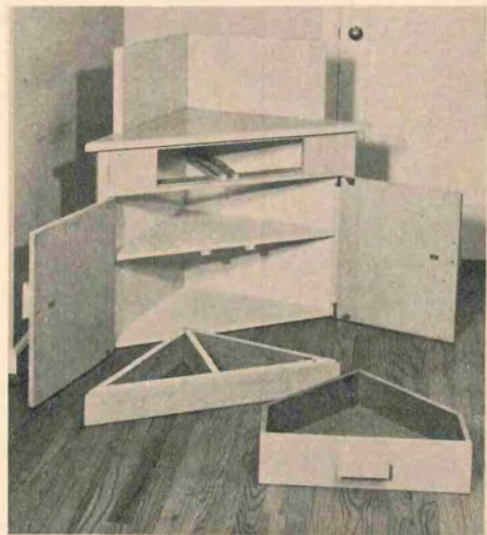
3/4" X 15 7/8" X 19 1/8"
PLYWOOD DOORS (2)
(ON CONCEALED
HINGE SETS) (2)

1" X 4" FRAMES (3)

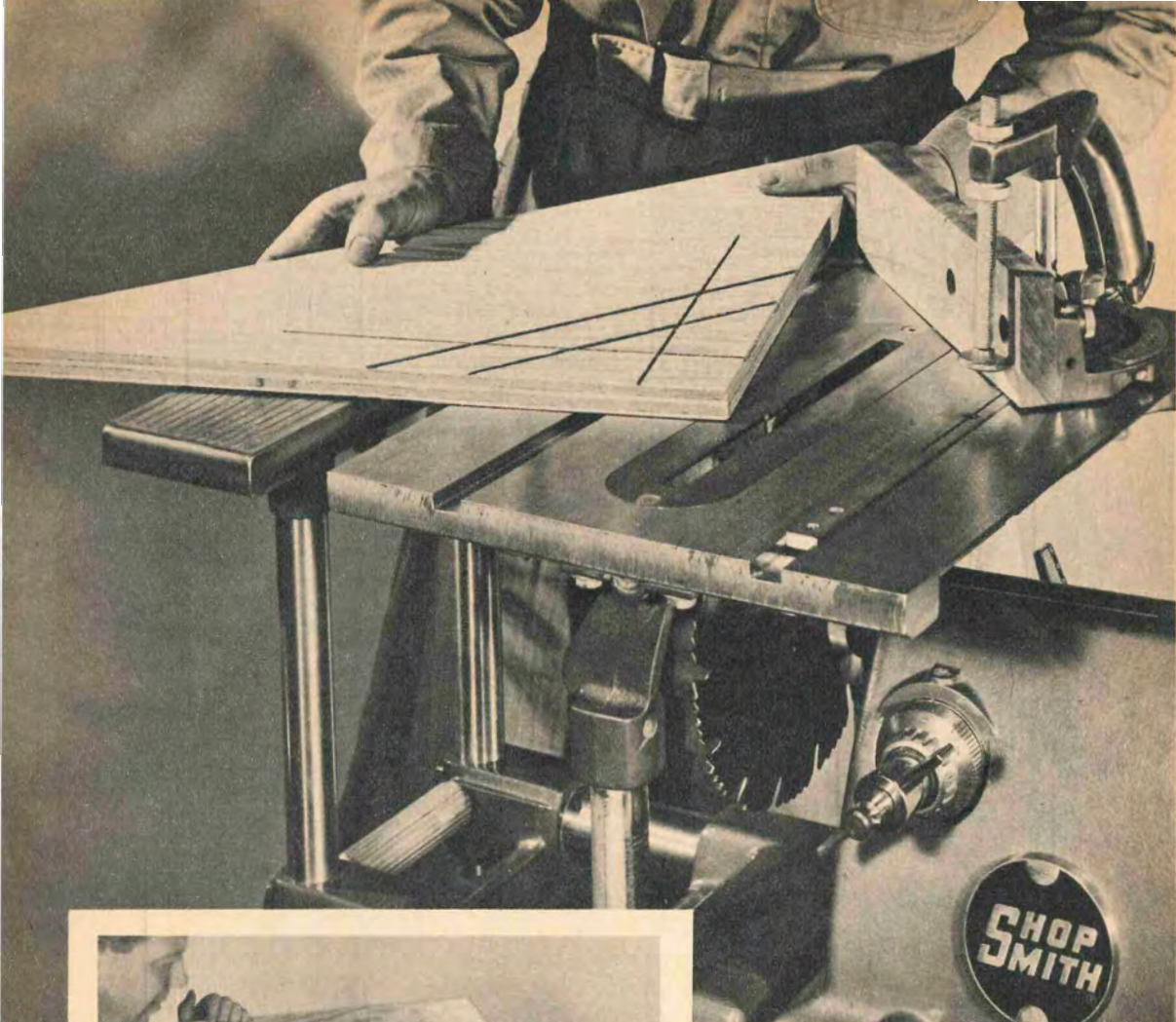
3/4" X 3 1/2" X 29"
FRONT BASE BOARD



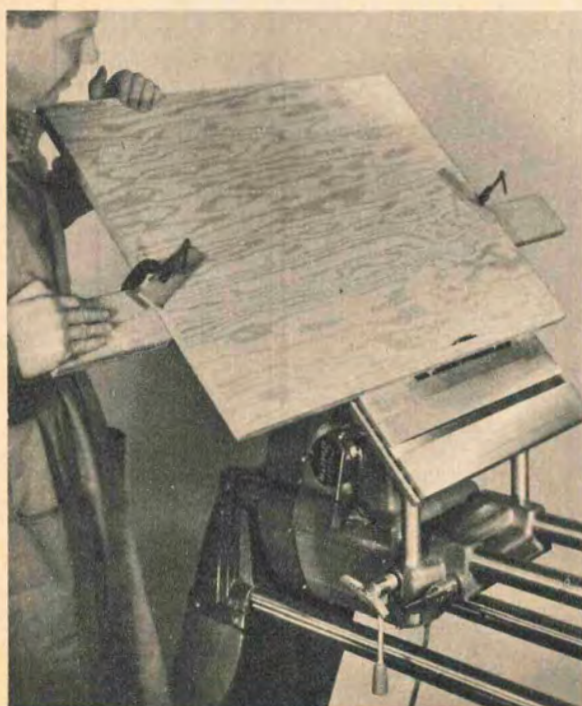
Above. Counter back, lower cabinet and base are now ready for positioning in corner you selected.



Right. Note that upper cabinet simply rests on counter back, secured by flat brackets on rear sides.



Above. With planer blade, make shallow cuts in upper cabinet's bottom and shelves to secure dishes leaned against sides of cabinet.



Left. To rip straight beveled edge on bulky cabinet sides, clamp a straight board under work, cut from above with saw at tool's left end. Board, riding saw table's edge, serves as fence to help at cut's start and end.

with nails and glue, use a Magna dado blade to cut the groove shown in each side for a metal shelf strip. These adjustable shelf strips vary in width, so obtain yours (at a hardware store) and run the grooves to fit. After assembling the cabinet, small blocks or a full-length strip of wood are glued into the rear corner to hold the third metal shelf strip needed. Place the small blocks to match the screw holes in the strip.

You will note that the "picture-frame" front of the cabinet is all that shows; it should be of solid hardwood. With your dado blade or with successive passes on the saw blade, cut the $\frac{1}{4}$ -in. wide grooves for the sliding glass doors. Cut the mitered corners to dimensions given and finish these corners to a perfect joint on your 12-in. disc sander, with the wood held in the miter gauge as for sawing and by moving the sander to the work with the quill feed. These frame corners require no doweling or other fastening. Place glue on the mitered corners and secure the four frame members to the rest of the cabinet with glue and nails. Drive all nails into the picture frame from the back of the cabinet. The picture frame is $\frac{1}{8}$ in. wider on all sides than the rest of the cabinet—hiding that joint and providing allowance for any variation.

Now fit the two shelves. Smooth their front edges, which will show, to a machine-

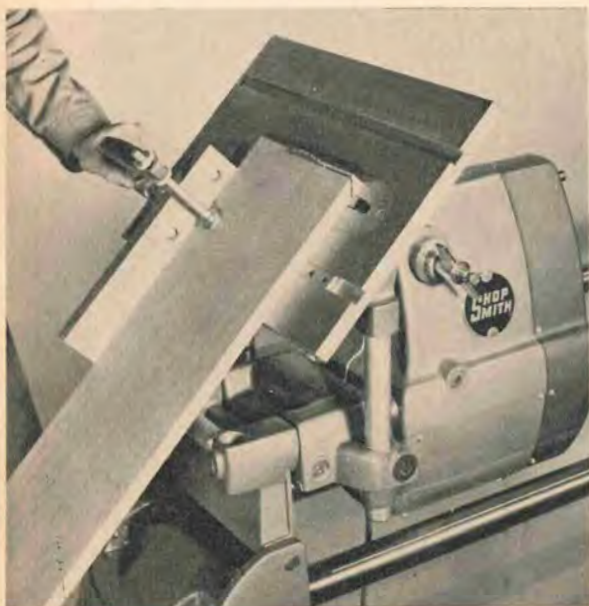
like smoothness on the 12-in. disc sander. With same, remove a bit of the shelves' back corners to clear the metal shelf strip. Next, drill an $\frac{1}{8}$ -in. hole through the ledge of each of the two small shelf brackets that fit into this rear shelf strip. Position the shelves and mark the underside of each at these bracket holes. Place a small screw there and cut off its head, as shown. The two screws serve as locking pins on the rear brackets, eliminating any possibility of a shelf sliding forward and falling.

Order two pieces of $\frac{3}{16}$ -in. glass for the cabinet doors, with edges rounded and one finger pull ground into each glass. The glass doors are placed and removed by simply sliding them full depth into the upper grooves, thus clearing the lower. Before ordering the glass, you'd better check your particular cabinet for any variation by cutting a piece of cardboard or plywood to the glass dimensions and trying it for size.

Counter Back

The counter back is simply two pieces of $\frac{3}{4}$ -in. hardwood plywood or solid hardwood, cut as shown. Using the quill feed of your multi-purpose tool, you can slice off thin strips of hardwood to face the front edge of plywood. Glue the strips to the edges, holding while drying with masking tape. Note that the counter back is se-

Use saw at table's opposite end—with miter gauge and grip—to bevel ends on $10\frac{1}{2}$ " counter back.



Metal shelf strips vary in width. Obtain yours first, then adjust dado blade for grooves that fit them.



cured to the lower and upper cabinets by screws and simple flat metal brackets (from the dime store) or strips of scrap plywood.

Lower Cabinet

The sides of the lower cabinet are of $\frac{3}{4}$ -in. plywood, in which you dado grooves, $\frac{1}{4}$ in. deep, the full width of the sides, for the cabinet bottom and lower shelf. Short dado grooves are cut for the drawer framing. No groove or rabbet is needed for the upper 1 x 3 middle brace. This piece carries no weight, but simply prevents the drawer from tilting when pulled out. All the crosspieces and braces can be of common lumber and are nailed and glued in place.

The cabinet front is all of hardwood and $\frac{3}{4}$ -in. hardwood plywood. The $1\frac{1}{4}$ -in. square side posts are glued and nailed (from the back) to the plywood sides. They protrude $\frac{1}{8}$ in. beyond the plywood sides, as on the upper cabinet. The two $\frac{3}{4}$ x 1 in. drawer rails are glued and nailed from the front to the crosspieces, using small and few nails. The plywood panels alongside the drawer are glued and nailed from above and below through the drawer rails. Use small screws to attach the drawer guides

and wax the wood liberally. The two doors are hung with piano hinges or Washington Line pin hinges. Door pulls are cut from solid hardwood; the drawer pull is the same as one of the others with its slanting side down.

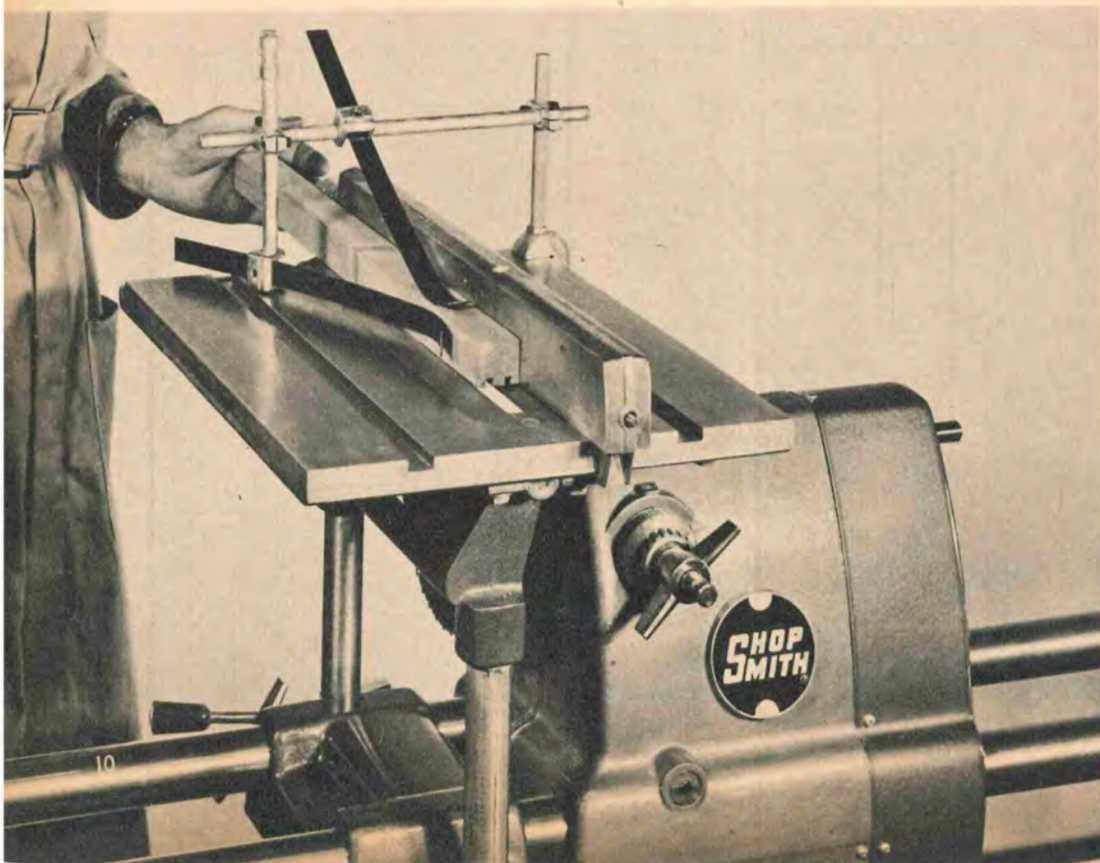
The drawer is built as shown. Be certain to have its bottom $\frac{1}{2}$ in. above its sides, to clear the drawer guides. Bottom can be of plywood or hardboard. To cut the two mitered corners of the drawer sides, set your table saw at $22\frac{1}{2}$ degrees tilt. The sides below the drawer bottom are cut off at the rear corner to give clearance for the drawer guides.

Last, attach the top or counter. Of $\frac{3}{4}$ -in. hardwood plywood with a matching hardwood strip on the front side, it is positioned flush with the two cabinet sides, extending over the cabinet front. Glue and nail from below through the crosspieces and by toenailing from below through the cabinet sides.

Cabinet Base

Note that the middle 1 x 4 brace is cut square at its rear end, to best clear any corner of your baseboard. The front of the 1 x 4 base is covered by a slightly narrower

Use of the universal hold-down guarantees you straight grooves for the sliding glass doors of your cabinet.



strip of hardwood plywood or hardwood. Two short dowels are shown in the front of the base. These fit corresponding holes in the bottom of the lower cabinet, securing the base to the cabinet. To locate the cabinet's dowel holes, drive a small brad in each stub dowel of the base and file its head to a sharp point. Place the base in the room corner, snug against the baseboard. Place the lower cabinet on the base, and push down to mark with the brads.

Finish

The finish of the cabinet will depend on the natural or bleached tone desired and the hardwood used. Woods with a handsome natural grain and good color such as mahogany, redwood, cherry, walnut and cedar will look well with a natural finish. You'll find that a wood filler is necessary for oak, walnut or mahogany, unless the grain is to be color-filled. The fir plywood interiors of the upper and lower cabinets are best finished with a neutral-color flat paint, not a glossy. Rubber-base paint, or the quick-drying wax stains, can also be used on the interiors. The cabinet need not be attached to the walls. •

With the dado blade, cut short grooves, $\frac{3}{4}$ inch wide, in sides of lower cabinet for drawer framing.

MATERIALS USED IN EXAMPLE

Upper Cabinet:

- 1 pc.— $\frac{1}{2}$ " x 33" x 48" fir plywood—two sides
- 1 pc.— $\frac{3}{4}$ " x 23" x 46" fir plywood—two shelves, top & bottom
- 2 pcs.— $\frac{1}{4}$ " x $\frac{1}{4}$ " x 67" mahogany—picture-frame front

Counter Back:

- 1 pc.— $\frac{3}{4}$ " x $10\frac{1}{2}$ " x 41" mahogany plywood
- 2 pcs.— $\frac{1}{16}$ " x $\frac{1}{8}$ " x $10\frac{1}{2}$ " mahogany—facing

Lower Cabinet:

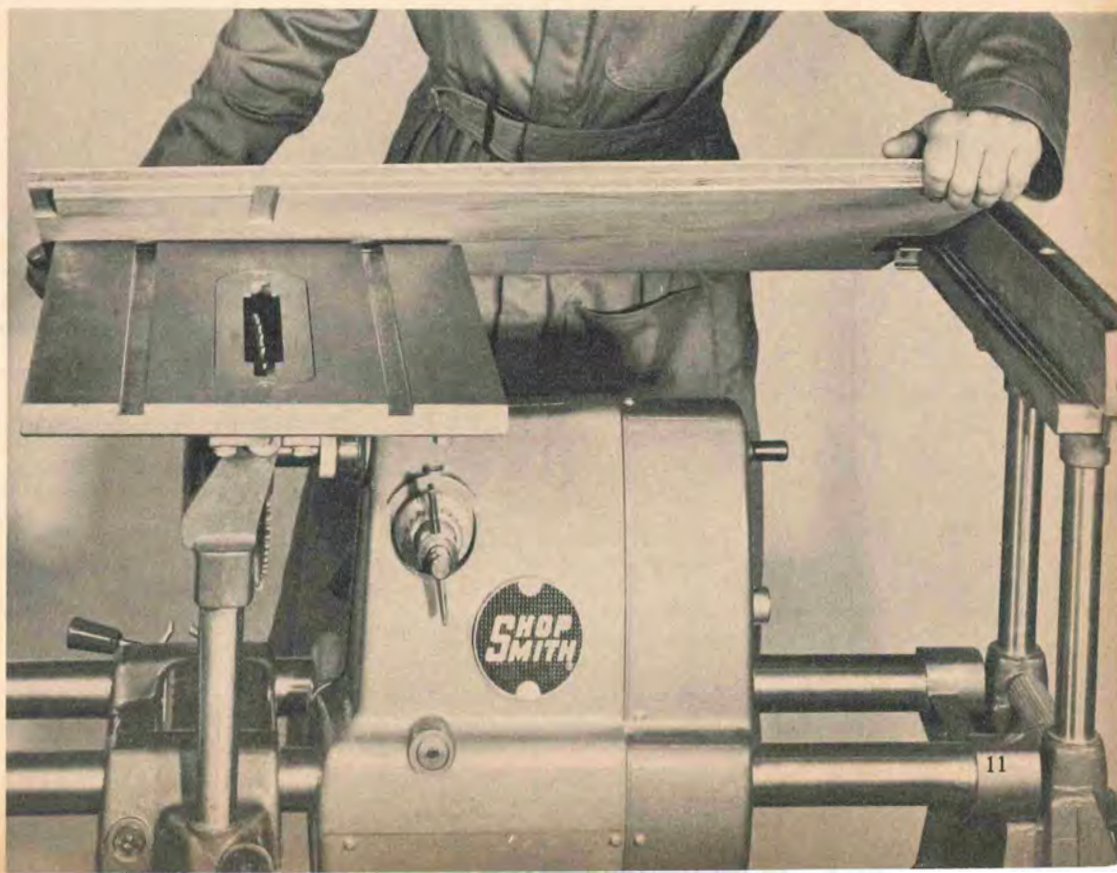
- 1 pc.— $\frac{3}{4}$ " x 26" x 48" fir plywood—sides
- 1 pc.— $\frac{3}{4}$ " x 24" x 24" fir plywood—shelf & bottom
- 1 pc.— $\frac{3}{4}$ " x $2\frac{3}{4}$ " x 48" fir—upper drawer frame
- 1 pc.— $\frac{3}{4}$ " x $3\frac{3}{4}$ " x 48" fir—lower drawer frame
- 3 pcs.— $\frac{1}{2}$ " x $\frac{3}{4}$ " x 12" oak—drawer slide & guides
- 1 pc.— $\frac{1}{4}$ " x 16" x 20" hardboard—drawer bottom
- 2 pcs.— $\frac{1}{2}$ " x $5\frac{1}{2}$ " x 21" fir plywood—drawer sides
- 1 pc.— $\frac{3}{4}$ " x 28" x 28" mahogany plywood—counter top, drawer front & drawer-space panels
- 1 pc.— $\frac{3}{4}$ " x 20" x 32" mahogany plywood—doors
- 1 pc.— $\frac{1}{2}$ " x $1\frac{1}{2}$ " x 12" mahogany—three door pulls
- 2 pcs.— $\frac{1}{4}$ " x $1\frac{1}{4}$ " x 27" mahogany—side posts
- 2 pcs.— $\frac{3}{4}$ " x 1" x 32" mahogany—drawer rails

Base:

- 1 pc.— $\frac{3}{4}$ " x $3\frac{3}{4}$ " x 7' fir—frame
- 1 pc.— $\frac{3}{4}$ " x $3\frac{1}{2}$ " x 29" mahogany plywood—front
- 2 ea.— $\frac{1}{2}$ " dowels, 1' long

Miscellaneous:

- 2 pcs.— $1\frac{1}{2}$ " x $30\frac{3}{4}$ " glass, $\frac{3}{16}$ " thick
- 3 ea.—3 ft. lengths metal shelf strip, two brackets each
- 2 pr.—Washington Line brassed pin hinges
- 2 ea.—magnetic cabinet catches
- 8 ea.—flat metal brackets





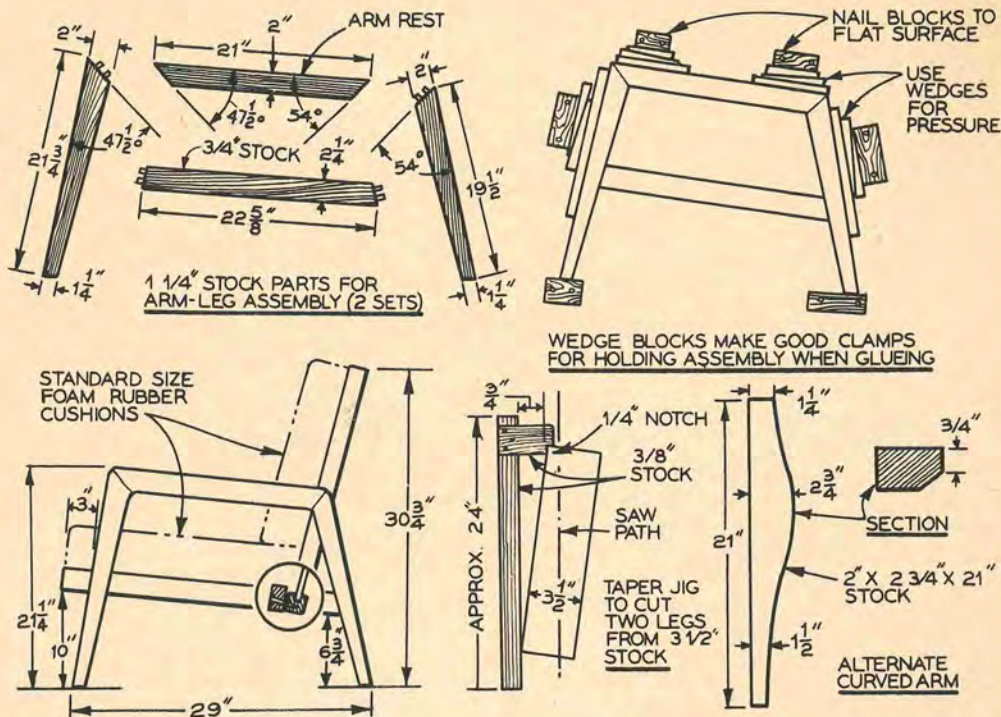
SWEDISH LOUNGE CHAIR

THIS modern lounge chair evolves from the imported Swedish designs that are so popular today. It utilizes standard-size foam rubber cushions, available anywhere, and is not a chair that must be pushed against a wall—its back is equally attractive.

Though bespeaking genuine craftsman-

Comfort, beauty and ease of construction recommend this striking modern lounge. By the sectional method described, it's easier to make than a simple kitchen chair.

ship, the design is not difficult to build in your home power workshop. It is, in fact, easier to make than an ordinary kitchen chair. Its four sections, sides, seat and back, are made separately, thus greatly simplifying construction. Its armrests can be made straight or curved, whichever you prefer. All exposed joints are doweled joints, easy



to accomplish on the horizontal drill press of your multi-purpose tool. And the springing of the seat, ordinarily quite difficult to get just right, is something new, and very simple, even for the amateur.

A good hardwood, such as walnut, cherry, or the birch of the example, should be used throughout this chair.

One of the new plastics that simulate cloth—excellent for den or modern living room—was used to cover the cushions of the example. However, if a softer look is desired for your living room, an upholstery cloth can be used. Place a zipper in a bottom edge of the cloth cover, so that it can easily be removed for cleaning.

SIDE SECTIONS: To construct the side sections, first build the simple taper jig of scrap plywood that is shown in the drawing. This jig, sliding along the rip fence, gives the correct taper to both the front and back legs. Cut two legs from one piece

of 1 1/4 x 3 1/2-in. hardwood to eliminate waste. Cut the upper ends of the legs to the angles given, using the miter gauge.

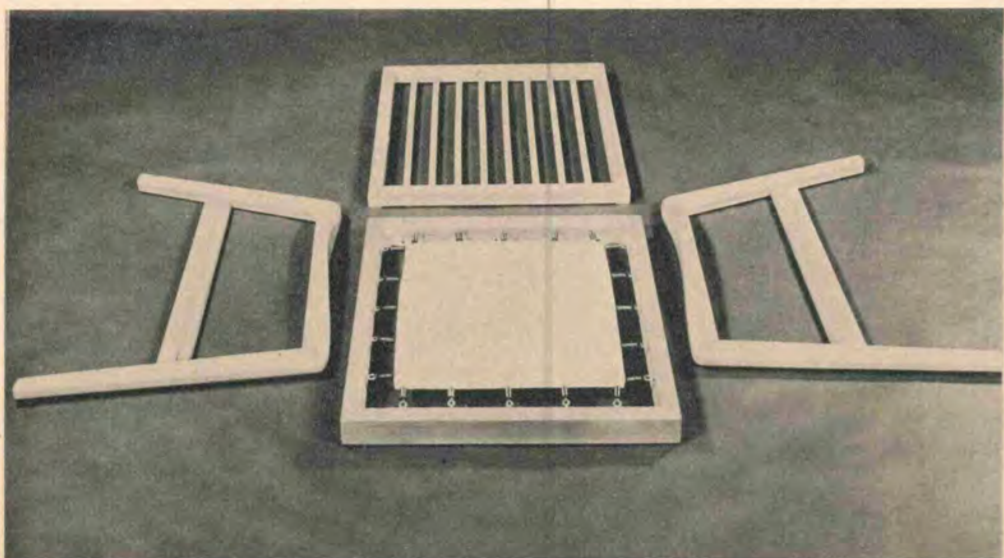
The drawing shows a straight armrest, which is simplest and quite attractive on this chair. The photos show an alternate curved armrest, which requires free-hand forming on the jointer or sander. For the latter, note the small cross section view of the alternate drawing. You first rip the bevel shown on the underside of the 2 x 2 3/4-in. hardwood used. This bevel gives less wood to remove and a graceful line to the completed arm. The top and side curves of the arm are roughed out on the jointer or the 12-in. disc sander, using coarse sandpaper, and are finished on the 2 1/4-in. drum sander and by hand. To have both arms the same, draw a full-size template on paper marked off in 1-in. squares and with carbon paper transfer the shape to both pieces.

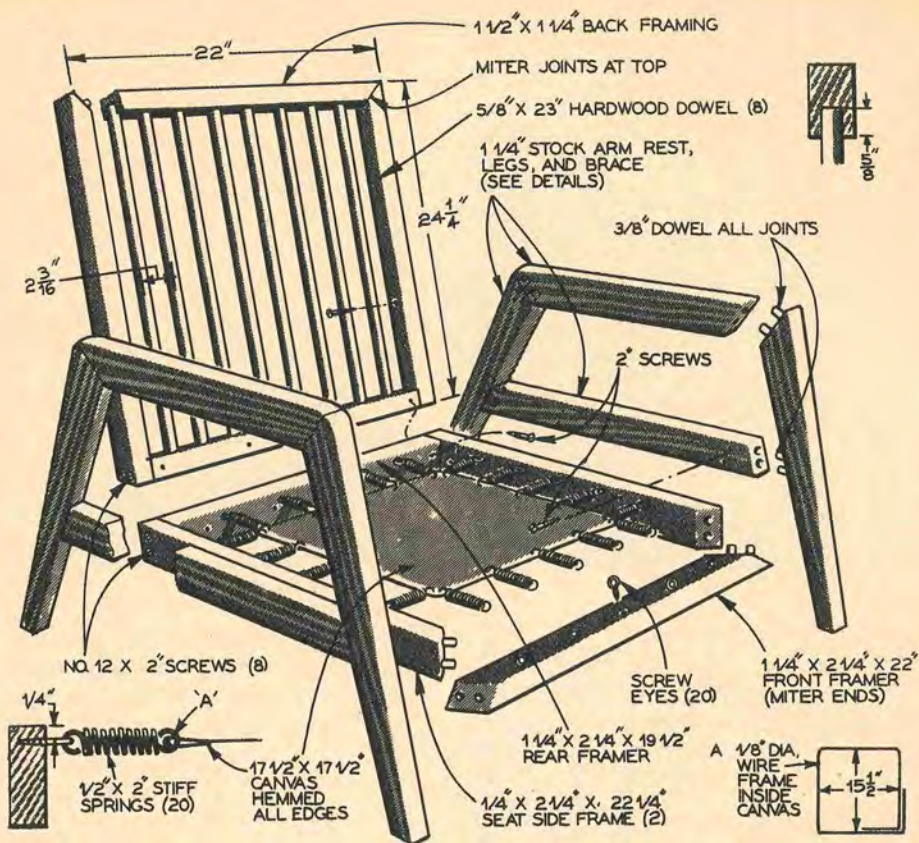
Cut the ends of straight or curved arms



No need to conceal this chair's back by pushing it against a wall. It's equally attractive from any angle.

Note individual sections. Fully knock-down characteristics of chair help in simplifying its construction.





to the angles given and then use your miter gauge and 12-in. disc sander to smooth these and the mitered ends of the legs for a perfect fit. Next, temporarily assemble the arms and legs on a flat surface to find the exact angle to cut the ends of the $\frac{3}{4}$ x 2 $\frac{1}{4}$ -in. crosspieces. Mark each crosspiece with its own legs and armrest, because the least deviation anywhere may change the angle required. Note in the photos that the crosspieces, being thinner, are positioned flat with the inner sides of the legs.

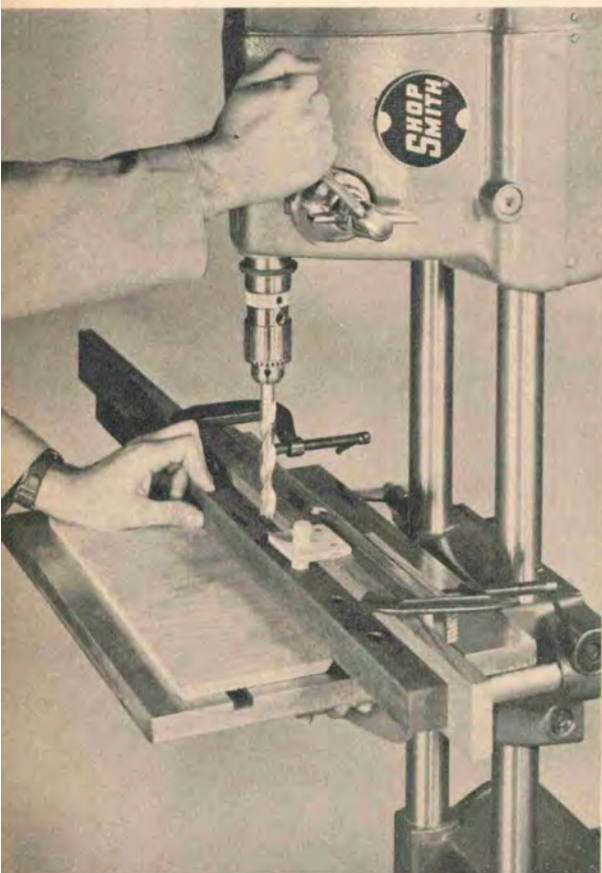
Use a $\frac{3}{8}$ -in. auger bit in your horizontal drill press to drill two dowel holes for each joint. Drill $\frac{7}{8}$ in. deep for 1 $\frac{1}{2}$ -in. lengths of dowel, except at the outer corners of the armrest, where shorter dowels are better to prevent drilling through the work. Drill all dowel holes at right angles to the face of the work, and cut grooves in your dowels so that excess glue can escape instead of pushing the pieces apart while the

joint is drying. The drawing shows how to utilize scrap blocks and wedges on your workbench, or on boards, to clamp the assembly for gluing. The same clamping method can be used on the back and the seat frame.

CHAIR BACK: To construct the back, first make a jig as shown in the photo to equally space the $\frac{5}{8}$ -in. dowel holes in the top and bottom pieces. You can make the jig as fast as marking off the holes, and it gives more accuracy. Another cabinetmaker's trick here is to drill the holes first, and then cut the pieces off at their mitered ends—thus, if your hole spacing does not come out exactly right for the overall length, you can equalize the difference between the two ends. Note that only the upper corners are mitered and doweled. Only one dowel, 1 in. long, is used at these two joints. Glue and assemble the eight long dowels and the



Dowels shown above are sold for joinery. With edge of 12" disc sander, groove yours. It permits escape of excess glue that might force joint apart.



For easy spacing of dowel-rod holes in the chair's back, a jig of plywood scrap with a $\frac{5}{8}$ " hole is nailed to a board which is clamped to rip fence. Dowel pushed in last hole sets position of next.

outer frame at the same time, using glue and a 2-in. No. 12 wood screw at each bottom corner. As you clamp the back together to dry, check it for squareness with a carpenter's square.

SEAT: The seat frame is built as the back, but with two dowels in each front corner joint and two screws in each rear joint. The trampoline seat bottom is made of any heavy canvas available. You sew the 15½-in. square frame of wire into the hem of the canvas. Five screw eyes in each side of the wood frame hold the springs—be sure to drill lead holes for these screw eyes to prevent splitting, because they are only ¼ in. from the top of the frame. The springs shown should be fairly stiff, such as those used in steel cots. Punch holes through the canvas to hook the springs over the ⅛-in. wire. When assembled, canvas "trampoline"



When last spring is hooked onto its screw eye, canvas "trampolin" should be tight as a drum.



Back is secured by screw into each leg-armrest corner, by four screws through back of the seat.

should be stretched to drum-like tautness.

Before final assembly, generously round over all of the exposed edges of the leg sections with sandpaper, to a full $\frac{1}{2}$ in. radius. The seat and back require less rounding. Position the seat with the leg assemblies to dimensions given to locate four holes to drill through each side of the seat frame for the $1\frac{3}{4}$ -in. No. 12 screws into the leg crosspieces. The back is attached with one 2-in. screw through each side into the rear leg near its top and by four $1\frac{3}{4}$ -in. screws through the rear of the seat frame into the bottom of the back.

The foam rubber cushions given are of standard size. The 20-in. height of the back cushion is reduced if the seat's thickness is 5 inches—foam rubber cushions vary from $3\frac{1}{2}$ to 5 in. in thickness. Simply trim off necessary amount from the bottom of the back cushion with ordinary scissors. •

MATERIALS REQUIRED

Hardwood:

- 1 pc.— $1\frac{1}{4}$ " x $3\frac{1}{2}$ " x 22"—front legs
- 1 pc.— $1\frac{1}{4}$ " x $3\frac{1}{2}$ " x 20"—back legs
- 2 pcs.— $1\frac{1}{4}$ " x 2" x 21"—armrests
(or 2" x $2\frac{3}{4}$ " x 21" for curved armrests)
- 2 pcs.— $\frac{3}{4}$ " x $2\frac{1}{4}$ " x 23"—leg crosspieces
- 2 pcs.— $1\frac{1}{4}$ " x $1\frac{1}{2}$ " x 48"—back frame
- 2 pcs.— $1\frac{1}{4}$ " x $2\frac{1}{4}$ " x 48"—seat frame

Miscellaneous:

- 8 pcs.— $\frac{3}{8}$ " x 23" hardwood dowel—seat back
- 1 length— $\frac{3}{8}$ " hardwood d wel—for dowel joints
- 1 dz.— $1\frac{3}{4}$ " #12 f.h. wood screws
- 8 ea.—2" #12 f.h. wood screws
- 1 ea.—20" square of heavy canvas
- 1 ea.—80" length of heavy wire ($\frac{1}{8}$ ")
- 20 ea.— $\frac{1}{2}$ " x 2" stiff springs
- 20 ea.—screw eyes
- 1 ea.—22" x 22" foam rubber cushion for seat
- 1 ea.—20" x 22" foam rubber cushion for back
- Cushion covers to suit
- Plastic resin glue or equal

BOOMERANG CHAIR

“Real professional stuff,” your friends will comment on this one. They’ll be absolutely right, too. But you can swing it in your own home workshop.

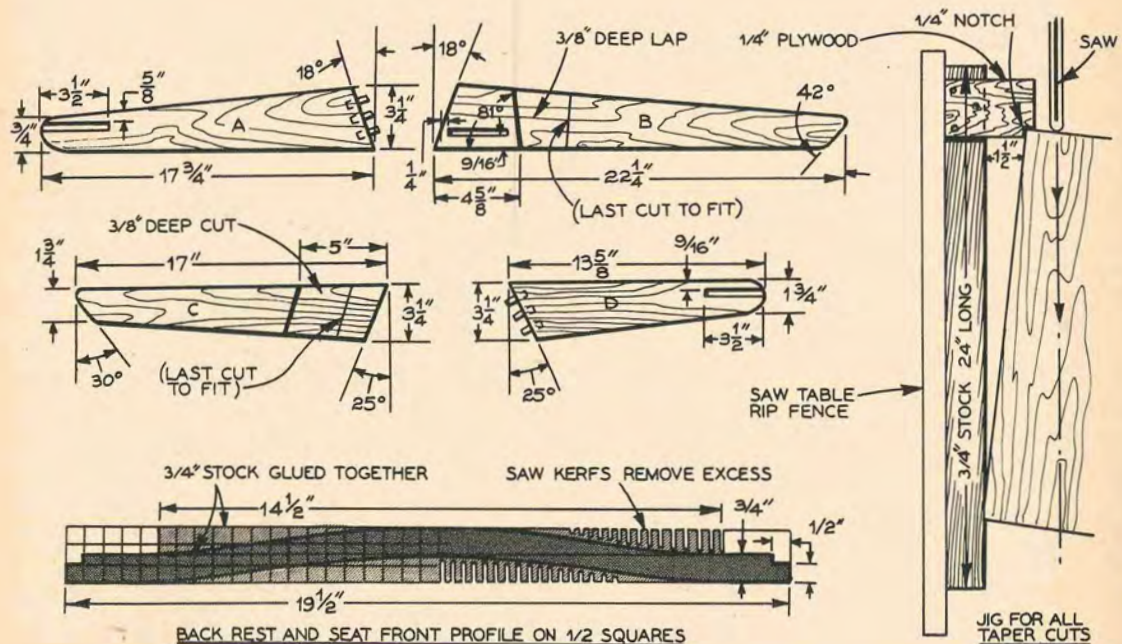
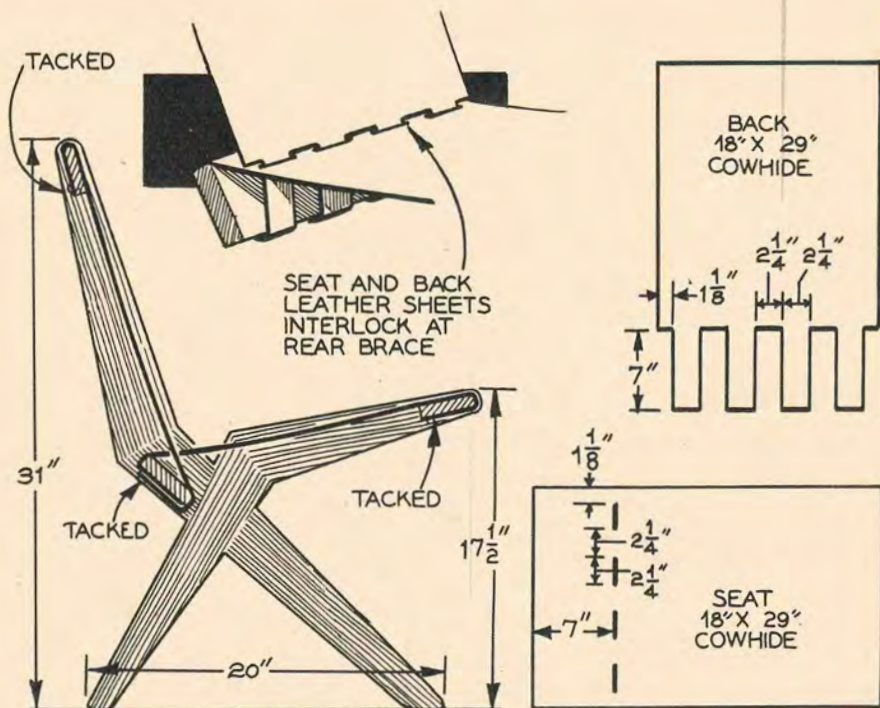
HERE is a refreshingly different modern chair—an occasional chair that is surprisingly comfortable and a conversation piece to grace the living room, activity room, den or bedroom.

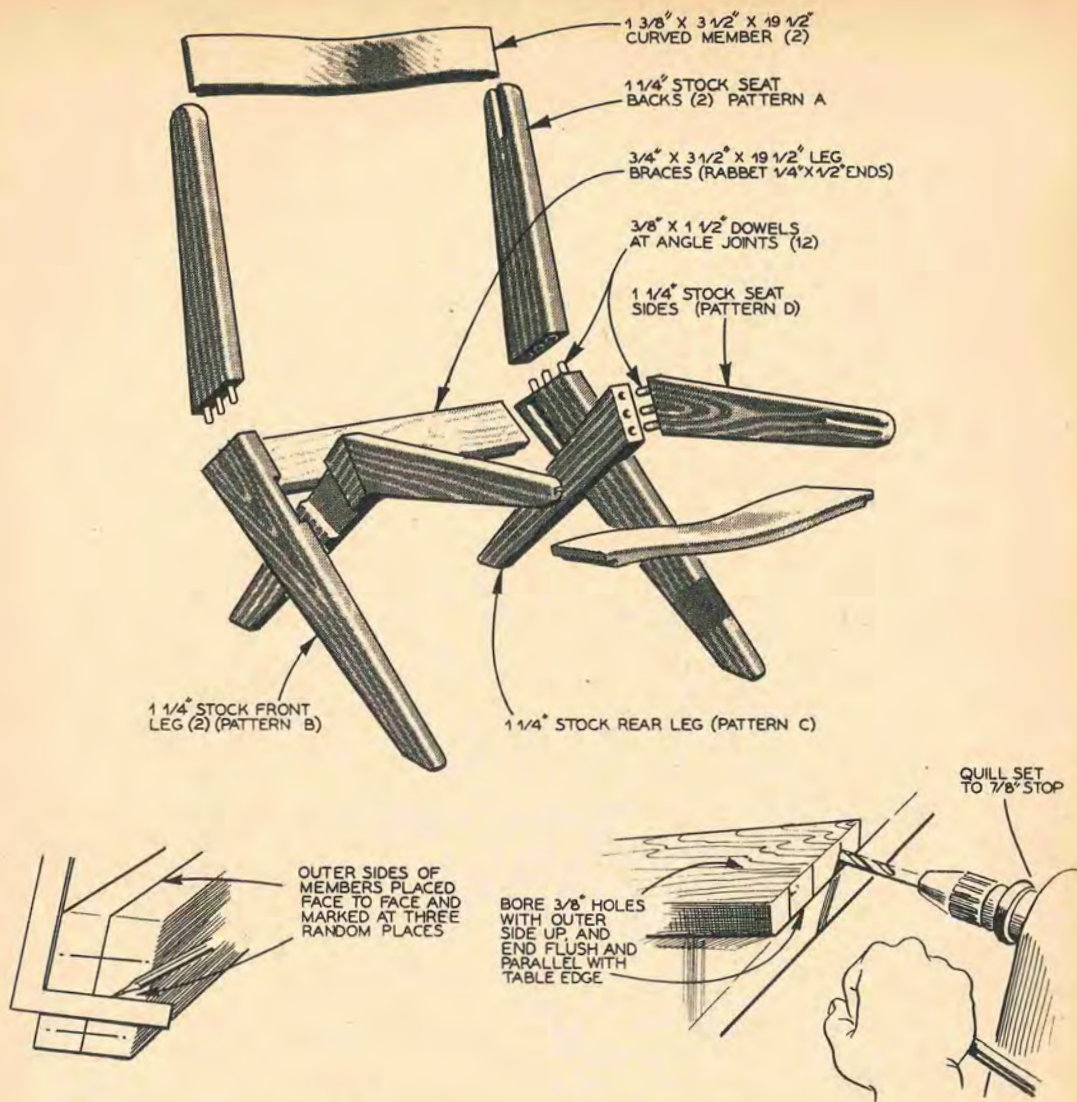
Its seat and back are of tanned cowhide. A crossed pair of graceful “boomerangs” on each side form the framework, and its unusual construction provides a sturdy chair, yet one light in weight.

In the example shown, cowhide of a light mellow tone was chosen. With it, walnut was used for the frame. Birch or cherry, stained to walnut, would have given the same effect. With a darker leather, a contrasting light or bleached hardwood is desirable.

This exclusive design gives a high-grade piece of cabinetwork that anyone can build in his home workshop. The important







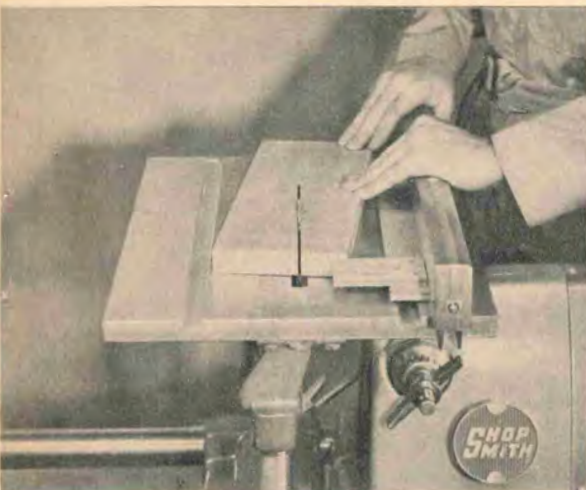
craftsmanship here is to obtain perfect joints and correct angles in the boomerangs.

First, build the simple jig shown of scrap plywood to obtain the correct taper on the boomerang members. This one jig serves on all boomerang parts, because all are $1\frac{3}{4}$ in. wide at one end and $3\frac{1}{4}$ in. at the other. Cutting your boomerang members from the widths of $1\frac{1}{4}$ -in. hardwood called for by the material list gives two members from each cut, without waste. Cut the ends of these boomerang members to the angles shown, using a sharp crosscut or planer blade in your table saw. If your blade is dull and doesn't give a smooth cut, finish with the 12-in. disc sander, moving the sander with the quill feed and holding the

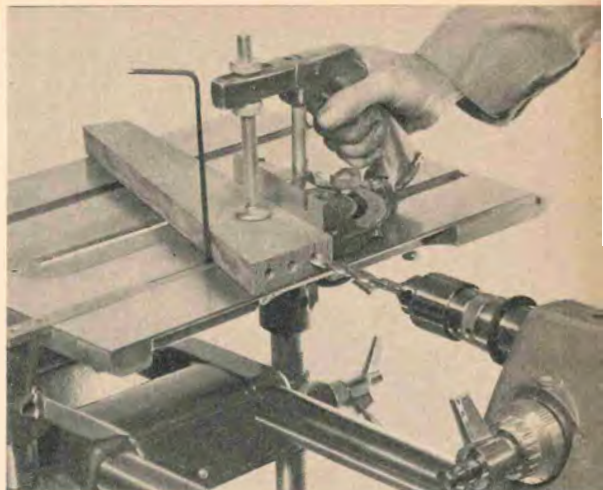
work against the miter gauge at the angle needed.

With the multi-purpose tool as a horizontal drill press, you now drill the dowel holes for joining the two members of each boomerang. This joint is made with three $\frac{3}{8}$ -in. dowels, $1\frac{1}{2}$ inches long. Use a $\frac{3}{8}$ -in. auger bit and set the quill feed stop to drill the holes $\frac{7}{8}$ in. beyond the near edge of the table. Place the end of the work even with the edge of the table, and parallel to it.

Another trick for perfect doweling is to mark the dowel hole locations of both members with a square at the same time, laying the outer sides of the two members face to face. This insures aligned holes even if the marks are not evenly spaced. And



Above. With this simple jig, of plywood scrap, you can cut all boomerang members to required taper.



Above right. Dowel holes are drilled at right angles to the work's face. Miter gauge locked in slot (with Allen wrench) and safety grip eliminate movement.



Right. Lap joint of legs is made with dado blade.

drill the dowel holes in both members with the outer side of the member facing up. Thus, if you do not have the saw table adjusted to the exact height to center the holes in the width of the work, the holes will still align perfectly.

Next, with a pencil and the miter gauge, mark the angled cut given in the diagram for the lap joint where the boomerangs meet. To obtain the second line needed for this lap joint, temporarily assemble your boomerangs on a flat table and draw the line where the legs cross each other. Cut these lap joints with your dado blade. Note that they are only $\frac{3}{8}$ in. deep—and that the two boomerangs do not fully lap on each other.

Now, assemble the four boomerangs with

the dowels. Cut shallow spirals or grooves in the dowels so that excess glue at the ends of the holes will not force the joint apart while it is drying. Use a plastic resin glue and pound the pieces snugly together with a rubber hammer. Clamps are not needed.

When the joints are dry, you can cut the six mortises, all $3\frac{1}{2}$ in. long, $\frac{1}{2}$ in. wide and $\frac{1}{2}$ in. deep, for the three crossmembers of the chair. If you have one on hand, use a $\frac{1}{2}$ -in. mortising chisel in the drill press; otherwise, use a $\frac{1}{2}$ -in. auger bit in the drill press, finishing the cuts by hand with a chisel. You can produce accurate mortises by either method—using mortising chisel or the auger bit and then the hand chisel. When mortises are cut, you can glue and

clamp the two pairs of boomerangs together at their lap joints.

The three crossmembers are the remaining pieces. The leg member is a straight piece of $\frac{3}{4} \times 3\frac{1}{2}$ -in. hardwood with its ends cut to $\frac{1}{2}$ -in. width on the table saw to fit the mortises. The cutting of the curved backrest from $1\frac{3}{8}$ -in. thick stock is shown in the diagram. You could steam and bend this piece of $\frac{3}{4}$ -in. stock or build it up on a curved wood form of thin pieces, but the construction shown is simpler and of ample strength. Best to draw the curved edge full size on a sheet of paper and to transfer it to the edge of the work by tracing over carbon paper. On the saw table, make saw kerfs of varying depths to rough out the curved shape. Break out the excess with a chisel and finish the work on the $2\frac{1}{4}$ -in. drum sander, or by hand with chisel and scraper. The curved seat crossmember



Note clean lines of frame. Select or stain wood used to contrast with the hide chosen for seat and back.

is cut exactly the same; its only difference is in being $\frac{1}{2}$ in. shorter in overall length.

Plastic resin glue will secure the three crossmembers in their mortised joints. For a good bond here, clamping is needed. If no furniture clamps are at hand, lay the rear of the chair back flat on the saw table and use the quill feed as a clamp to put pressure on the leg crossmember. Pull the backrest and seat-front members tight with twisted clothesline.

Round all edges and corners of the hardwood and finish as desired—stained, bleached or natural. The two pieces of tanned cowhide are now cut, as shown, to form the back and the seat. The cowhide used in the example is $\frac{1}{8}$ in. thick. With brassed upholstery tacks, attach the seat first. All the tacks shown in the worm's-eye view are on the seat's leather. The tongues of the back leather pass through the slots

in the seat leather and are tacked to the rear side of the wood leg member. The top of the back leather is tacked to the rear side of the backrest and then trimmed off evenly. You do not need to wet or robustly pull on leather when attaching it. A slight sag in seat and back is advantageous. •

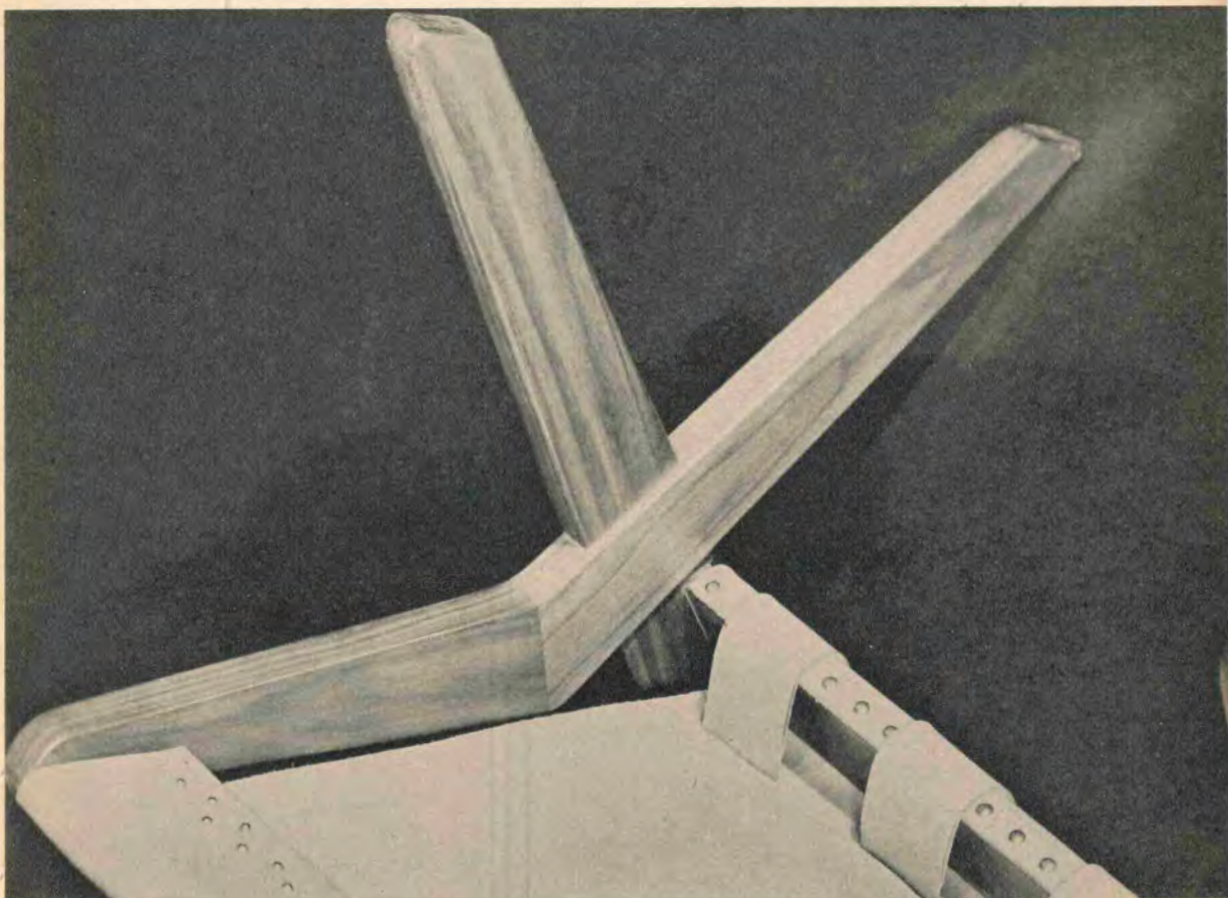
MATERIALS REQUIRED

Hardwood:

Back boomerangs—1 pc. $1\frac{1}{4}$ " x 5" x 40"
Seat boomerangs—1 pc. $1\frac{1}{4}$ " x 5" x 31"
Leg member—1 pc. $\frac{3}{4}$ " x $3\frac{1}{2}$ " x 20"
Curved members—1 pc. $1\frac{3}{8}$ " x $3\frac{1}{2}$ " x 39"

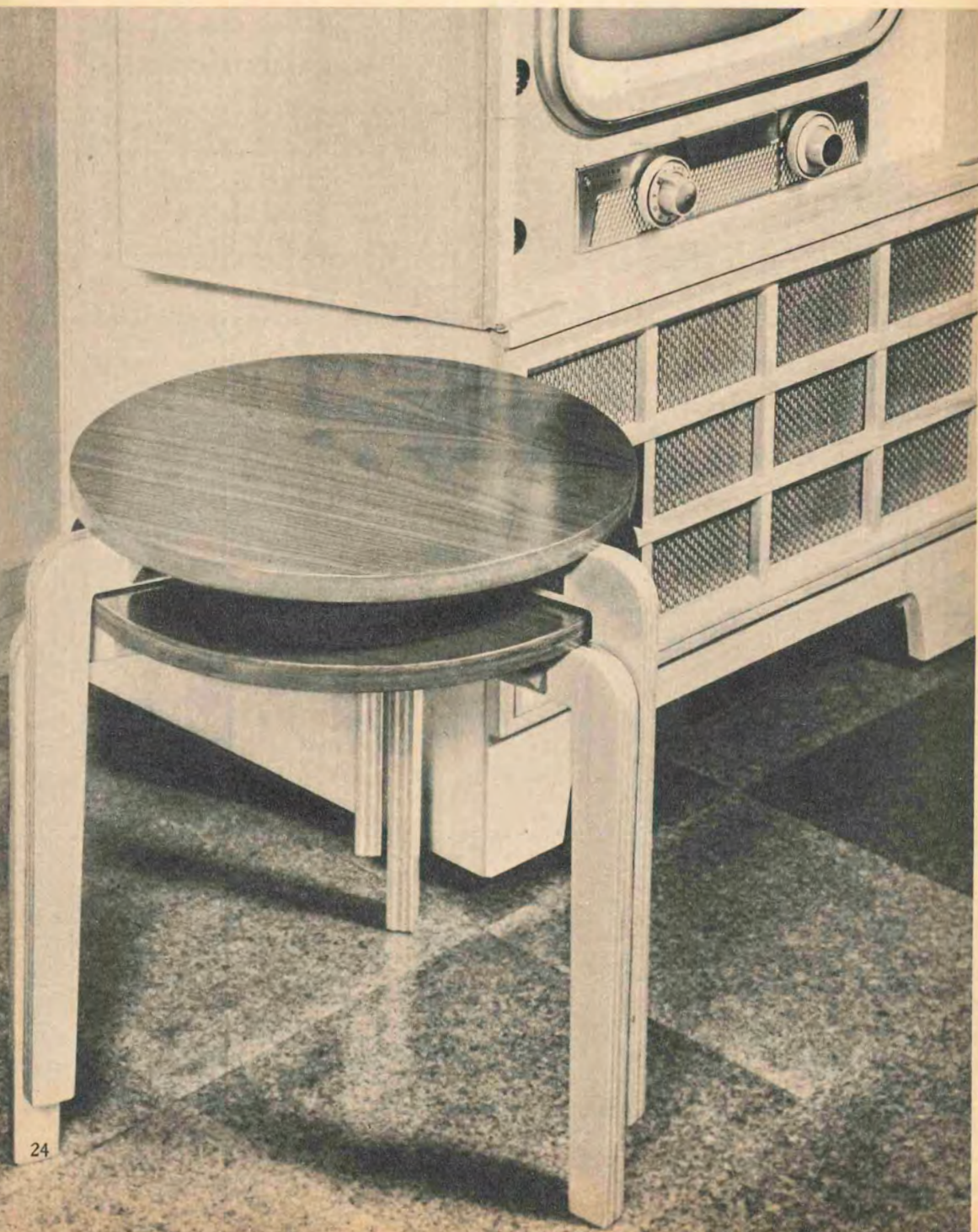
2 pcs. tanned cowhide, 18" x 29"
1 length $\frac{3}{8}$ " hardwood doweling
Plastic resin glue
Box brassed upholstery tacks

Worm's-eye view shows method used in attaching cowhide to finished frame of the chair—slots and tacks.



TV SNACK STOOLS

You'll find these attractive stools fun to make with your multi-purpose tool. And they'll prove mighty handy when the living room suddenly fills.

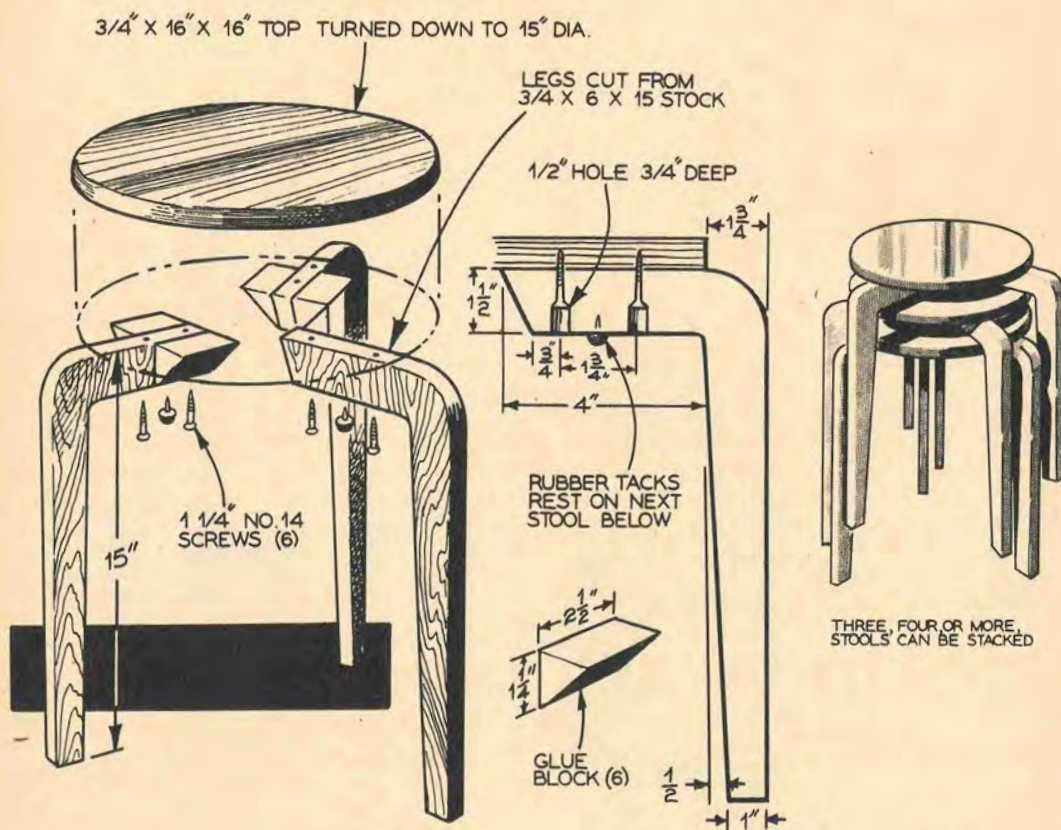


THESE modern stools give three-way usage. They serve as TV snack tables. The rest of the time they serve as end or occasional tables anywhere in the room—and even when stacked do not wobble. Third, they serve as stools, as extra seats when an unexpected crowd arrives. Children love to sit on them for watching television.

Construction is fun, a variety of different operations on the multi-purpose tool. The top of walnut or other plywood requires only a 16-in. square of material. You can also use the $\frac{3}{4}$ -in. plywoods with a plastic, simulated-wood layer bonded on one surface (the hard countertop material that requires no finishing). The legs of the example are of $\frac{3}{4}$ -in. birch plywood, to contrast with the walnut top. If you have the handyman's usual amount of plywood

scraps on hand, you can glue various thin pieces together for the legs, say, gluing a piece of $\frac{1}{4}$ -in. hardwood plywood to each side of a piece of $\frac{1}{4}$ in. or thicker fir plywood. Clamp firmly when gluing.

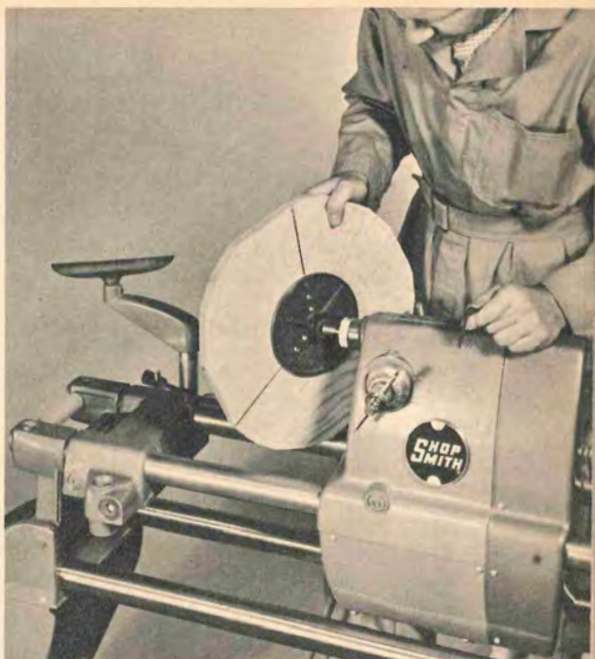
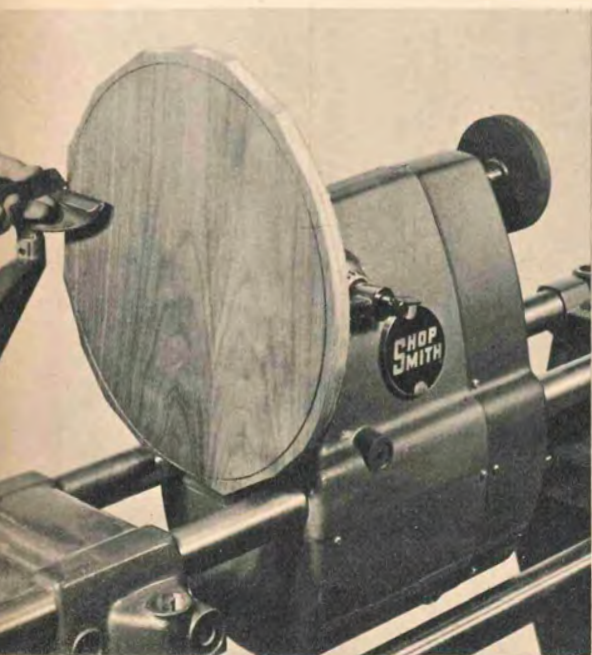
The construction is obvious and several cabinetmaker's tricks for obtaining the best job are given in the photos. Another is to fill any large voids in the edge of the turning with a wood putty and smooth down with sandpaper while still on the lathe. Tiny holes or burrs in a veneer layer are smoothed the same way, only using spackle or a surfacing putty. To finish the top, first apply your coat of resin sealer and then one coat of brown paint to the turned edge. Any pigmented paint is much better than a wood stain for toning the plywood edge—stain will almost blacken some layers and leave others very light. Finally,





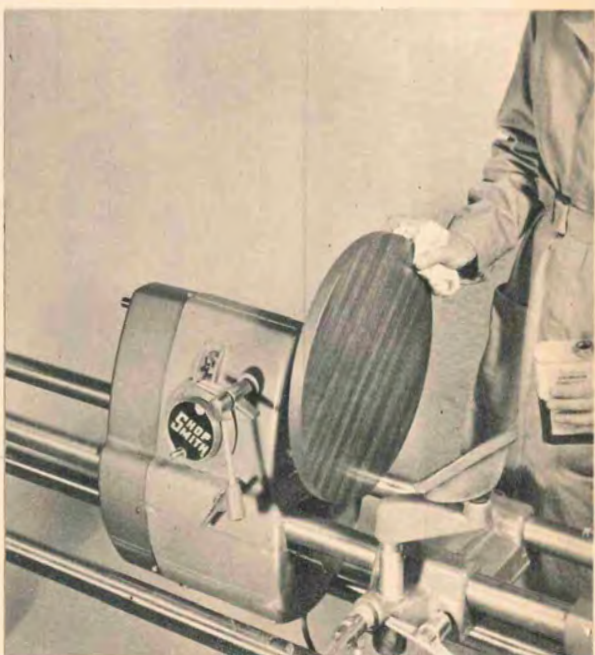
Snack stools are light, easily movable and ideal for tuning the TV set. Their sturdiness eliminates any fear adults might have at prospect of use as a seat.

For smooth turning on edge, set toolrest as shown. notch through veneer with skew chisel. Prevents splintering veneer in cutting with gouge or skew.



Rough-cut top on table saw—corners might "grab" lathe chisel. Mount on 6" faceplate with 3 screws. Lines from center through screws will position legs.

Top of stool can be finished on the lathe. Here edge has received a coat of brown paint to tone out the layers; rub finish with linseed oil is being applied.





Legs can be cut out on the jigsaw accessory or freehand on the table saw, completing inside corner with a handsaw. Keep cut away from finish lines.



Cut legs to finish size with 12" disc sander; prevents splintering and gives smooth edge. Round outside corner then; fill voids with wood putty first.

varnish or lacquer both top and edge of the stool seat.

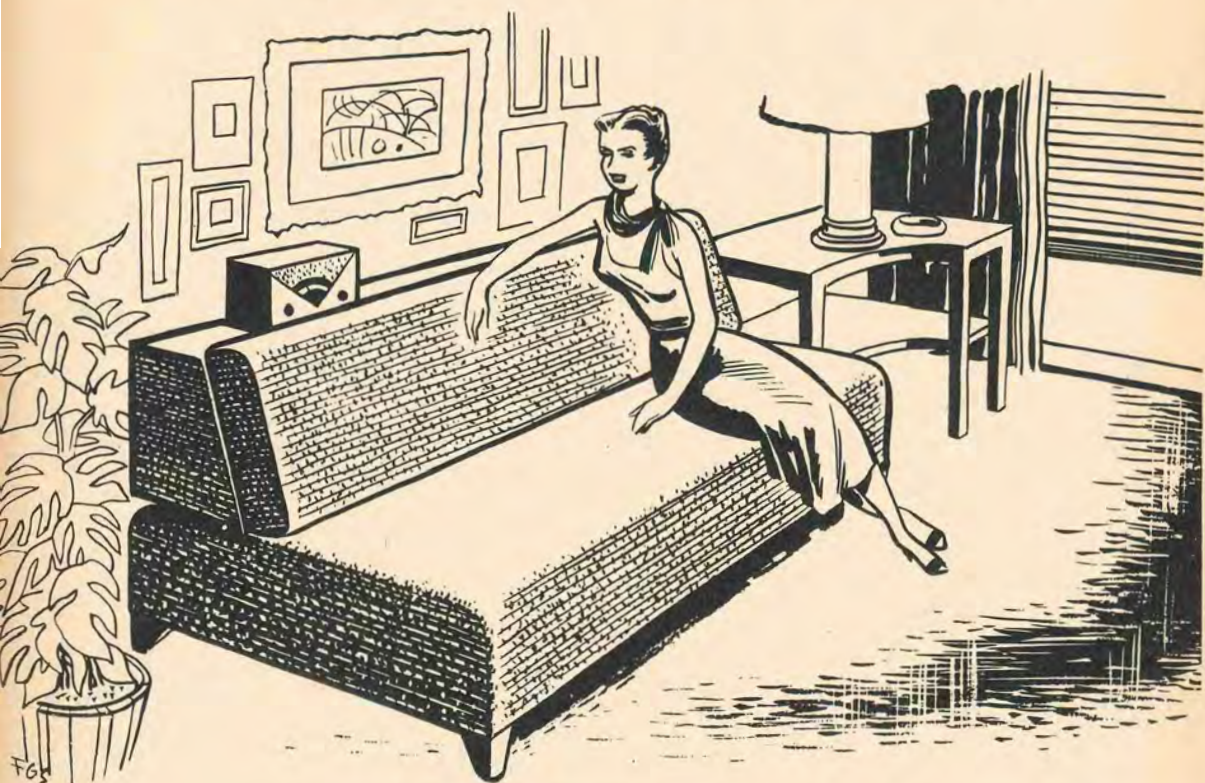
You will note the 12-in. disc sander is highly recommended for finishing the legs. It will cut them to size quickly and is smooth in action when cutting to the pencil lines. If yours cuts slowly or burns the edge of the work, the sandpaper is either too dull or too fine a grit for this work. The outline for the curved outer corners of the legs is most easily penciled with a jar lid that is approximately 3 in. in diameter. Drill the recessed screw holes with your multi-purpose tool in horizontal drill press position to assure exact centering in the $\frac{3}{4}$ -in. wood. •

MATERIALS USED IN ONE EXAMPLE

- 1 pc.— $\frac{3}{4}$ " x 16" x 16" walnut plywood—top
- 1 pc.— $\frac{3}{4}$ " x 9 $\frac{1}{2}$ " x 19" birch plywood—three legs
- 6 ea.— $\frac{1}{4}$ " No. 14 f.h. wood screws
- 3 ea.—rubber bumper tacks
- 6 ea.—2 $\frac{1}{2}$ " long glue blocks—scrap wood



DAVENO BACK FOR THAT EXTRA BED...



... converts it into a handsome, custom-made conversation piece, simply and economically. Or, if you've need of an extra bed frame, why here's the answer to that one, too.

HERE is a simple, inexpensive answer to the problem of a guest bed in your den or activity room. Build a daveno back for it in your workshop, and transform an otherwise obtrusive bed into a well tailored sofa or davenport.

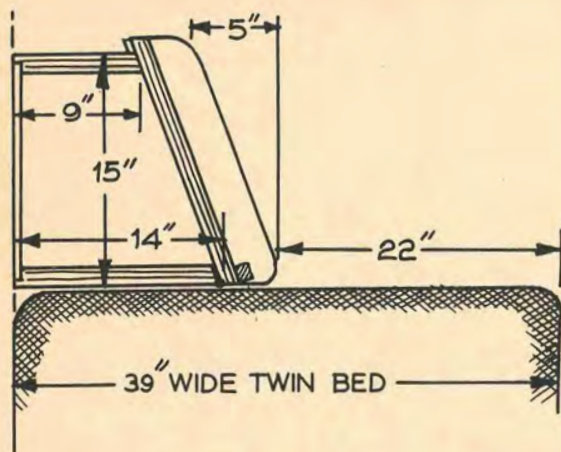
The back shown can be built to the size required to fit any single bed you have on hand. It is attached to a wall. At night, the bed simply pulls out from the wall and is ready. Two or three storage compartments in the back take care of the blankets and pillows needed for the guest.

Upholstering is easy. The trick here is to obtain a double-size bedspread and to trim it down to single size for the bed. The

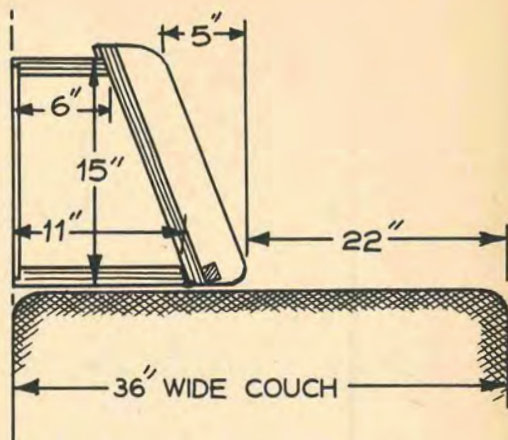
material left over will serve to cover the padded back.

First, measure the bed you will use—single beds do vary in width and length. The box of the daveno back is best built $1\frac{1}{2}$ in. shorter than the length of your bed. In width, the back is built to leave a 22-in. width for the sofa seat, as shown in the diagrams. On a narrow studio couch, the seat's width may be reduced to 20 inches, but on any bed it is not advisable to increase the width—a wide sofa seat is uncomfortable.

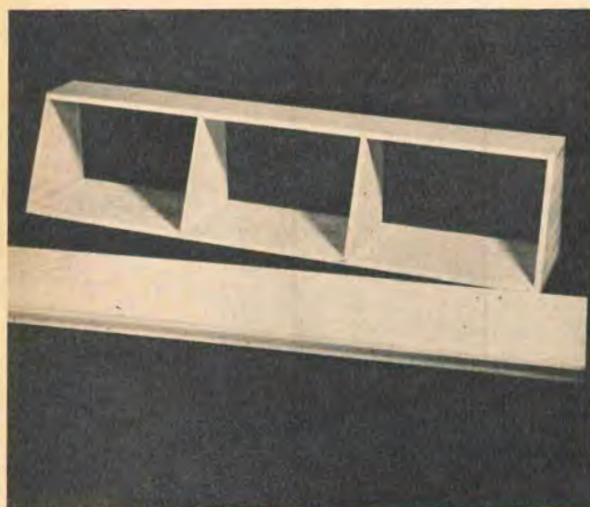
The top of the box and its two small ends are all that will show. A natural hardwood finish is always attractive but softwoods



Note simple construction of davenport back. Divide it into two storage compartments or three as below.



All beveled edges are made with the saw table of your tool inclined 18 degrees, as shown below.



may be painted to match or contrast with your color scheme. If you care to use solid hardwood with a natural finish, use joinery for painted softwoods but with hidden dowels instead of nails. Drill the dowel holes on the drill press of your multi-purpose tool. The wider bottom shelf, the partitions and the door are cut of $\frac{3}{4}$ -in. fir plywood. Set the saw table at 18 degree tilt to cut the beveled front edges of top and bottom pieces. A $\frac{1}{4}$ x $\frac{1}{4}$ -in. rabbet is run on the back edges of all four outer pieces with the dado blade to recess $\frac{1}{4}$ in. in a plywood or hardboard back.

The plywood door is cut oversize, to extend approximately $\frac{3}{4}$ in. beyond each side



and above the top of the box. Its beveled top and bottom edges are also cut at an 18-degree slant. The $\frac{3}{4}$ x 1-in. wood strip on the front of the door serves both as a stiffener on the long door and to prevent any sag in the padding. Use four $\frac{3}{4}$ x 3-in. butt hinges to hinge the door at the bottom. Two cabinet catches at the top secure the door. The new nylon type are good.

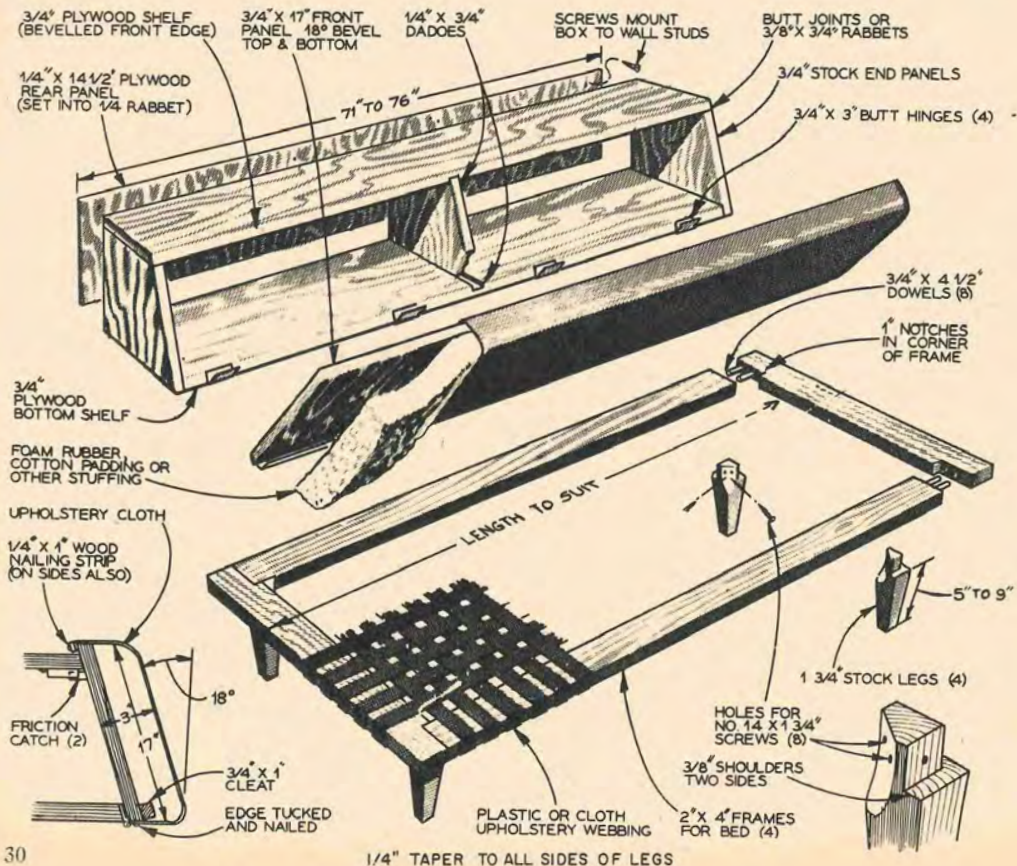
Inexpensive roll-type rubberized hair or cotton padding is fully satisfactory for the upholstering. Secure a 3-in. layer to the plywood with small tacks or upholsterer's cement. Cover the padding with muslin first and then with the bedspread covering. Edges of the cloth, are secured at the bot-



tom with upholstery tacks. On the two sides and top, use small ordinary tacks and cover them with $\frac{1}{4} \times \frac{1}{2}$ -in. wood molding, as shown. Because the long door may have a slight warp that shows up in its fit against the box, the molding serves a second purpose in covering the crack. A professional finish is obtained on the upholstery by tucking in with three or four buttons spaced evenly along the front. Cover any small button with a scrap of the bedspread, secure strong twine to it and (using a length of wire as a needle) pull the twine through the cloth, padding and a small hole drilled through the plywood door. Tie it down with another button at the back.

The completed daveno back is now secured to the wall with 6 or 8 wood screws long enough to enter the wall studs. The screws can be placed anywhere in the $\frac{1}{4}$ in. plywood back (with washers under their heads). There will be no difficulty in spacing them at stud distances. Leave little or no space between the bottom of the back and the bed.

Left. Cut rabbet for back with dado blade. Using rip fence, rabbet both end pieces, then saw to 5" slant.



HERE'S THE BED FRAME

Need the bed, too? With modern inner-spring or foam rubber mattresses, you need no springs for a comfortable guest bed. And by eliminating them, you save about half the cost and gain a firmer davenport for daytime use.

Measure the mattress you will use; one 36 to 40 in. in width is preferable. Build the frame to the mattress size of any clear, straight softwood 2 x 4s. Notch the end members 1 in. deep on the table saw. Drill $\frac{3}{4}$ -in. dowel holes as shown, drilling both pieces at once on the horizontal drill press. Assemble with $\frac{3}{4}$ -in. dowels and glue.

The legs will show, and should be of a hardwood, $1\frac{3}{4}$ -in. square stock. Their length will depend on the thickness of your mattress and should be of a length to give 17 to 18-in. overall height to the bed. With your multi-purpose power tool, you can easily do a professional job on these legs. Cut the notched upper ends on the table saw with the dado or saw blade. The rounded flat on the rear side is formed freehand on the $2\frac{1}{4}$ -in. drum sander; drill the two screw holes before sanding. The tapered sides can be cut on the table saw

but are much more simply done on the jointer. The trick here is to lower the front jointer table the needed amount of taper and to start the cut with the end of the tapered section on the edge of the rear table as shown. Thus, the jointer gives the slant or taper. On small pieces of hardwood such as these legs, it is easier to handle the work by setting the front table to $\frac{1}{8}$ in. cut, rather than the $\frac{1}{4}$ in. needed, and making two passes.

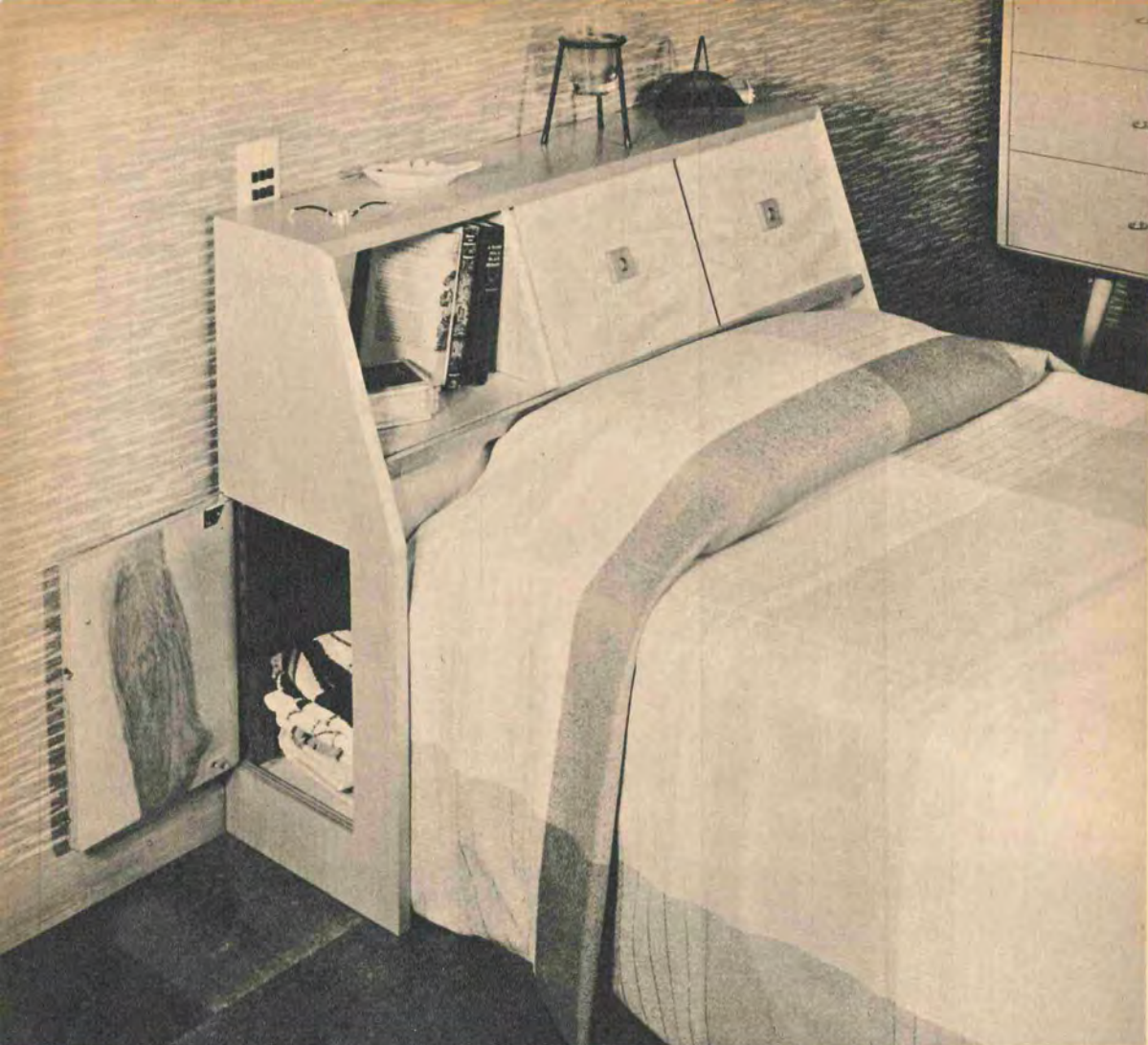
You can cover the bed frame with a panel of $\frac{1}{2}$ -in. plywood, rabbeted in as was the rear of the davenport back and with several 2-in. holes drilled through the plywood to allow air movement. However, webbing is preferable, as it eliminates the "slab" effect of plywood and also covers the edges of the softwood frame. A modern plastic webbing is best, in a heavy 2-in. wide grade such as Tufweb. Weaker plastic webbing should be avoided as it will sag. Cloth webbing, such as a heavy 2- or 3-in. wide upholstery grade, can be used. With either, double back the ends of the webbing and tack them to the inner sides of the bed frame, to extend underneath and up over the outer sides. •



Left. By drilling the $\frac{3}{4}$ " dowel holes in both members of frame at once you insure exact alignment.

Below. Form tapered legs on the jointer by lowering the front table amount of taper desired and starting cut with the end of the work on edge of the rear table. Guard has been moved only for photo.



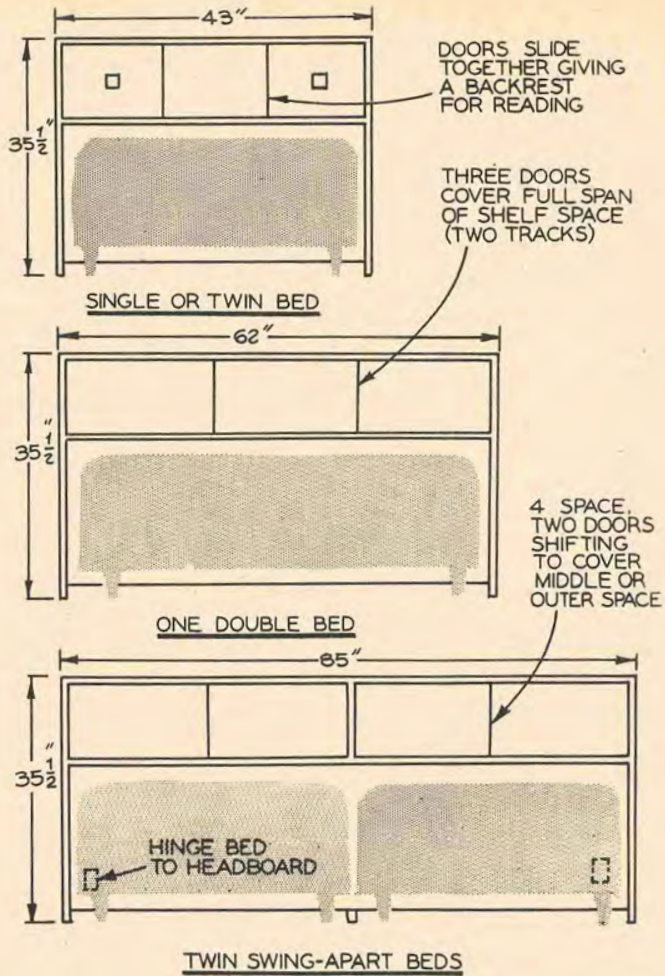


STORAGE HEADBOARD FOR ALL BED TYPES

Here's shelf and cabinet space a-plenty, and a fond farewell to that old dust-catcher, the night table.

THIS modern storage headboard does away with the cluttered bedside table. It has ample room for the clock radio, books, electric blanket controls, etc., of today's bedroom. It also provides a roomy storage compartment for that extra pillow and blanket.

The design adapts in width to fit any type of bed—single, twin, double and the swing-apart twin. As shown by the example, it does not tower high over a single or twin bed, yet has sufficient height

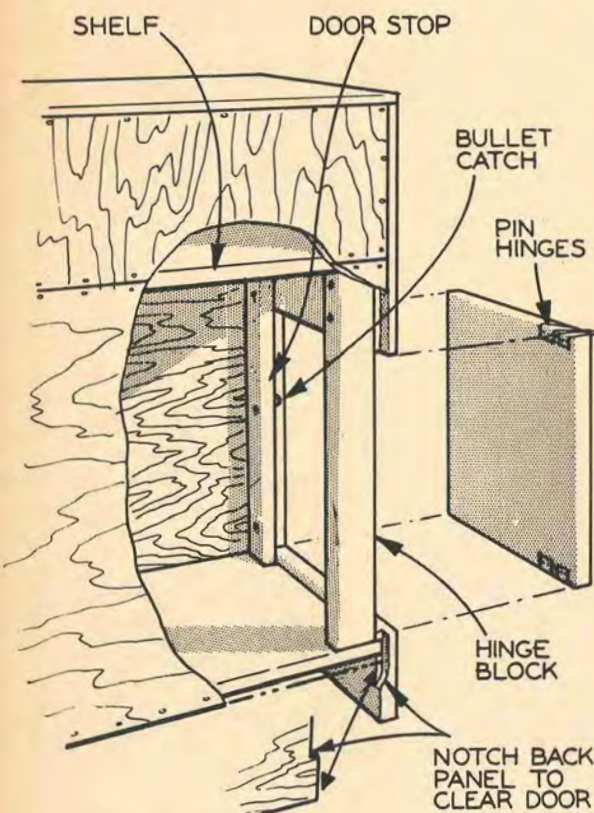


to serve as a pillow backrest for reading.

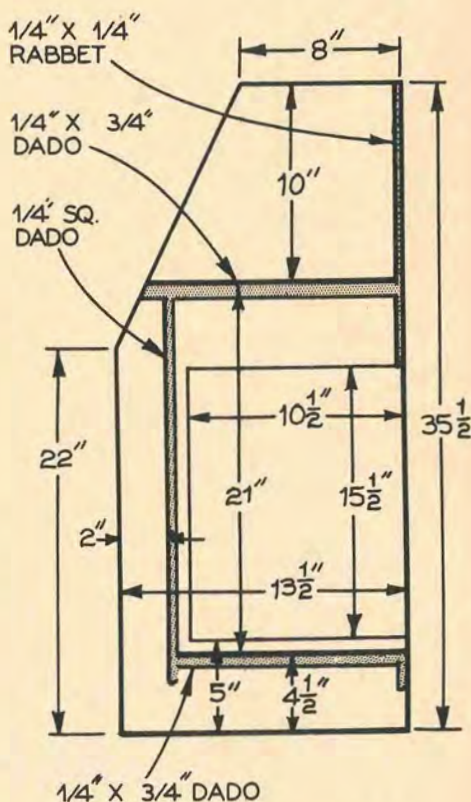
Its sliding doors can be natural wood or can be covered by any of a variety of materials. As they are prominent, covering them with different materials will revamp the headboard's entire appearance. The doors' covering can be changed at any time to blend with a redecorated room. In the example, ¼-in. birch plywood was used for the doors, matching the birch of the rest of the headboard, and small ⅜-in. thick fingerpulls of solid birch were made on the 12-in. disc sander. For sliding doors covered with other materials, you use ⅛-in. tempered hardboard in the same door grooves. Cork (from cork tile, place mats or cork photo mounts) offers one modern covering for the hardboard. Colored burlap, other cloth, sheets of textured plastic, grass cloth or the wallpaper used in the bedroom are also suggested.

Check your particular bed before starting construction, because beds do vary in width and height. If yours varies more than an inch from the average, change the height or width of the headboard to fit. The examples give the proper dimensions for the average twin or single bed, 22 in. high and 41 in. wide; for the average double bed, 22 in. high and 60 in. wide; and for twins set together as a swing-apart bed, 22 in. high and 83 in. wide.

The two sides of the headboard are cut first, from ¾-in. hardwood plywood. The ¾- and ¼-in. wide grooves on the inner side can be cut either with the dado blade on the table saw or with a ¼-in. router bit on the drill press. Note that the rabbet on the rear edge (for the ¼-in. back) is not cut through the doors. Best to cut out the doors on the table saw, as shown, before running this rabbet.



REAR CORNER DETAIL AT SIDE



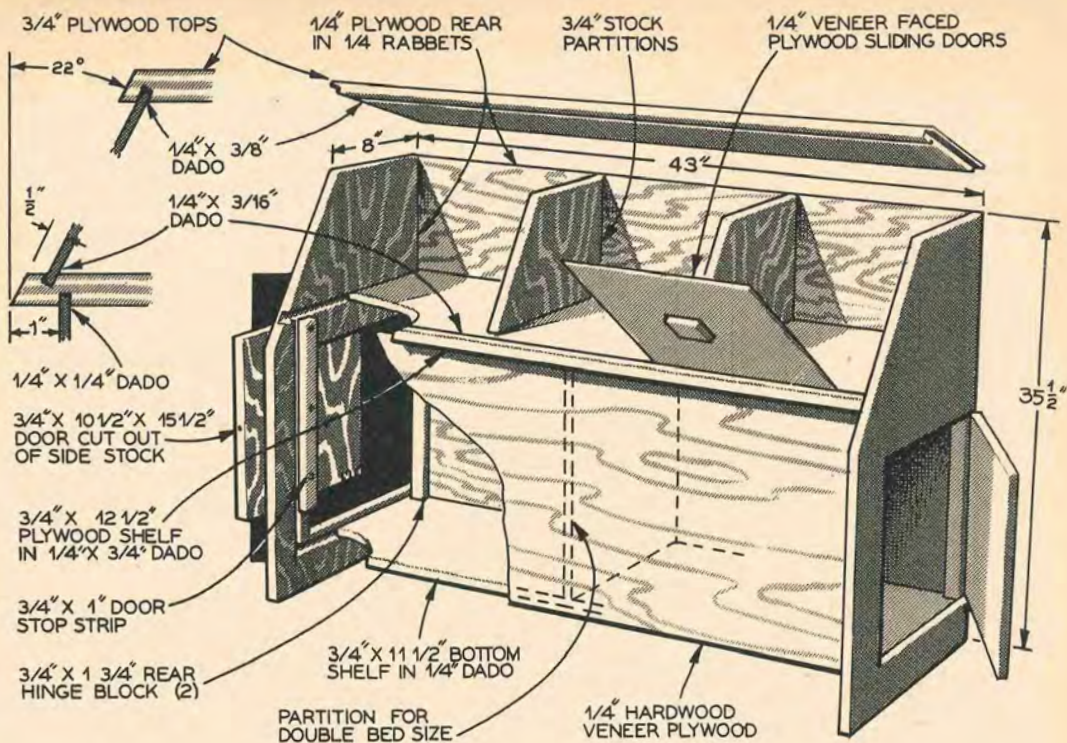
SIDE PANEL LAYOUT

You can assemble the top, the upper and lower shelves and the 1/4-in. plywood front to the sides of the headboard, all at one time. By using furniture clamps or twisted ropes, only glue is needed on their joints, excepting that of the lower shelf to the 1/4-in. plywood front, where small finish nails are used.

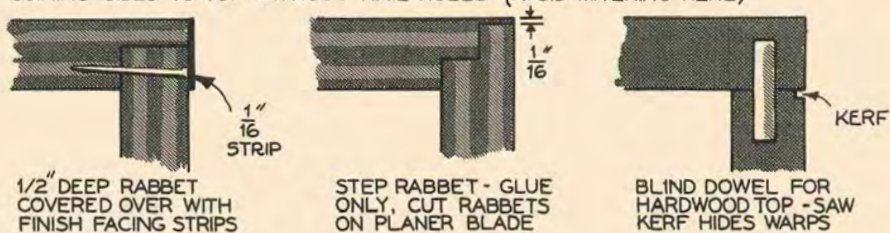
The front edges of the plywood sides, shelf, shelf partitions and top are faced with hardwood. You can use the new Wood-Tape, which is a thin hardwood strip with a contact adhesive on its back, or you can use strips cut from a piece of 3/4-in. hardwood on your table saw. Use a planer blade and leave the rip fence in one position, moving the saw blade instead with the quill feed for equal thin cuts. Apply glue to both the strip and the edge of the ply-

wood and secure with masking tape. With the white thermoplastic glues, it is well to remove any excess glue with a metal file rather than sandpaper, which will heat and gum the glue unless well set.

The sliding doors are installed by simply pushing them up in their grooves as far as they can go, then dropping them into the lower grooves. You will note that the sides of the headboards have no corresponding grooves to receive the doors. Your doors may warp slightly after use as a backrest and then will not fit such grooves. A simple butt fit is used, and easily made perfect by scribing the edges of the installed doors along the sides of the headboard and then sanding them down to the pencil lines on the 12-in. disc sander. If all compartments are to have doors, run a

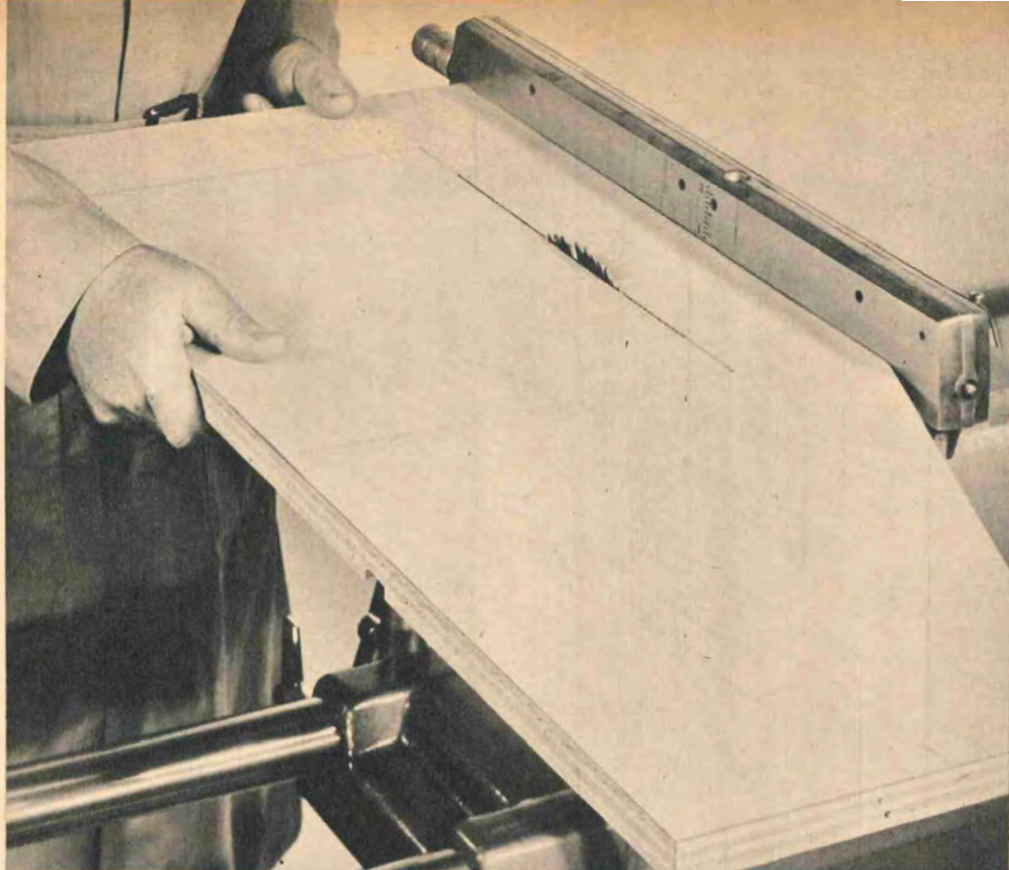


JOINING SIDES TO TOP WITHOUT NAIL HOLES (AVOID MITERING HERE)



After sawing, smooth all exposed plywood edges for facing on the 12" disc sander.



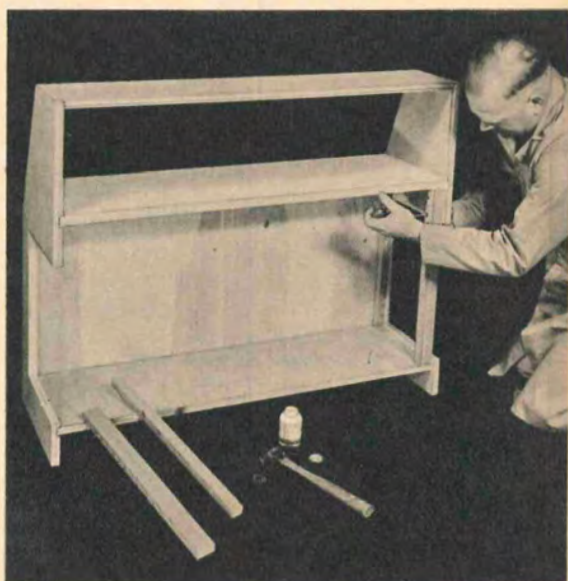


Doors are cut on sides with table saw. Use of a planer blade that has no set requires little sanding and gives the right clearance for finished doors. Complete cuts at corners with a hand saw.

Grooves for the sliding doors are cut with the dado blade, with table at a tilt of 22 degrees.



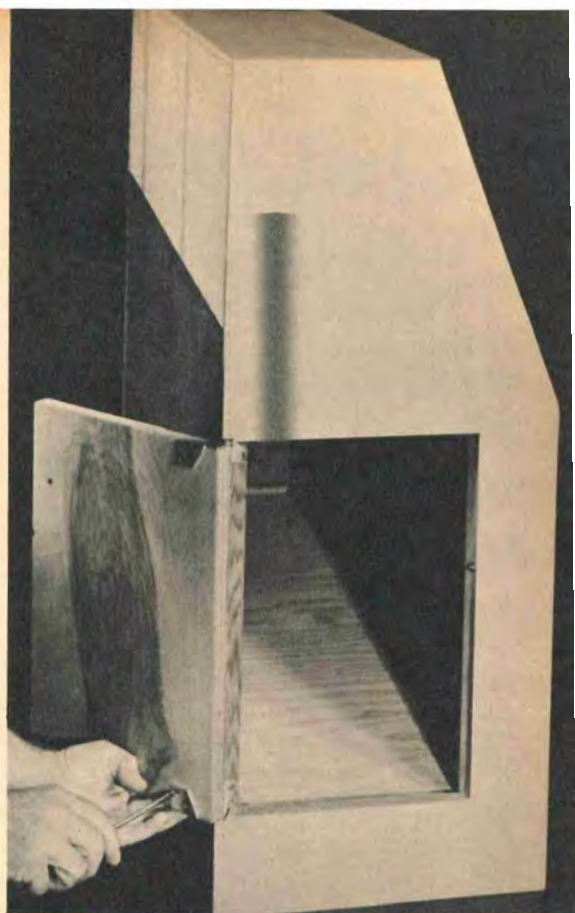
From inside, attach doors with nails, screws, glue; should be no exposed nails or nail holes.



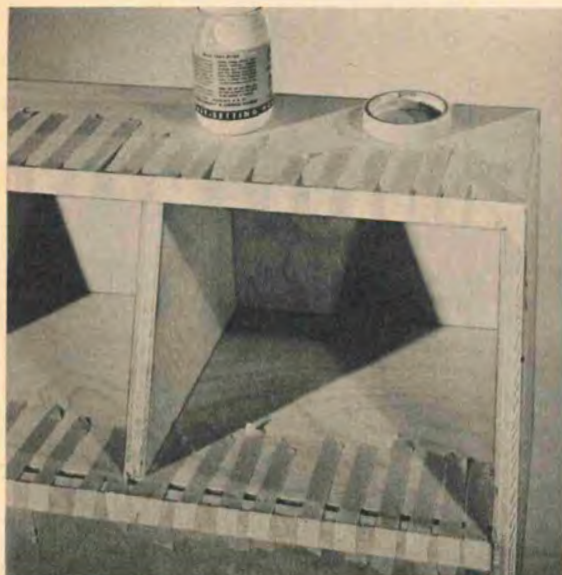
Right. Best hinges to use on headboard's side doors are the pin type. They will swing the rear edge of the door forward instead of against wall.

duplicate, second door groove $\frac{1}{4}$ in. behind the first groove in the top and the upper shelves. Cut the $\frac{3}{4}$ -in. shelf partitions $\frac{1}{2}$ in. back to accommodate same. On the $\frac{1}{8}$ -in. hardboard doors, use rubber cement to hold cloth or paper—it will not discolor the material. Extend cloth or paper over the door edges, cementing a border of an inch or so on the rear side of the door. On wallpaper and thin cloth, apply clear fingernail polish along the edges to prevent wear in sliding. On wallpaper, it is a good idea to cover the completed doors with clear wallpaper lacquer to prevent stains.

The modern swing-apart twins are simply twin beds placed together on one wide headboard. To facilitate making the beds each day, they must swing apart at the feet on their casters and therefore are each attached to the headboard by a hinge, located as shown. These hinges are obtainable from any furniture dealer and are attached to the $\frac{1}{4}$ -in. plywood front of the headboard with small bolts extending through a $\frac{3}{4}$ x 4 x 6 in. block behind. •



Exposed edges faced with hardwood strips cut on table saw. Masking tape clamps 'til glue sets.



Alternate facing: matching hardwood strip with contact glue on its back that adheres instantly.

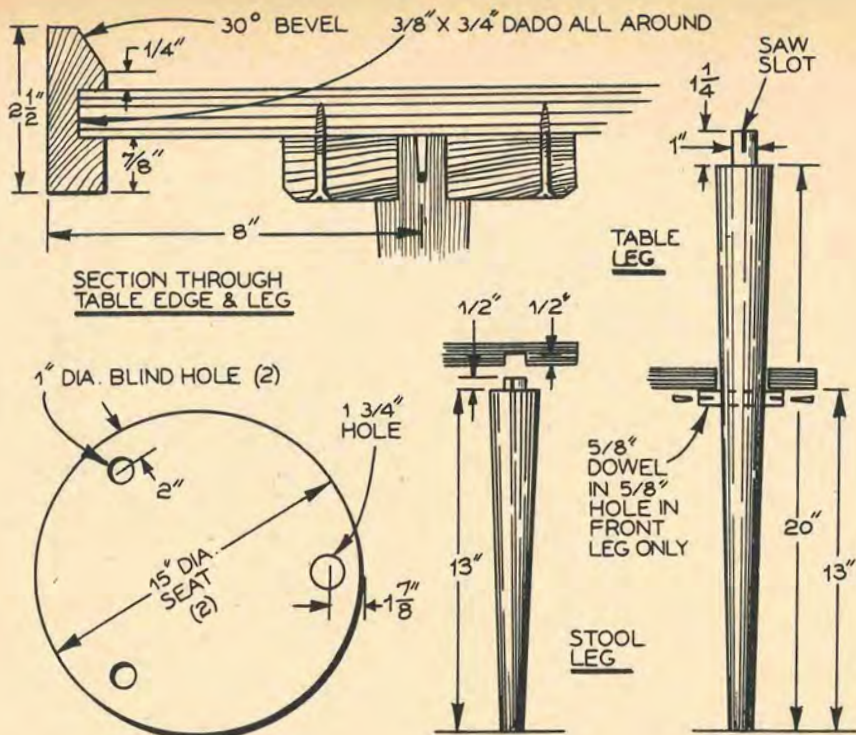


CHILD'S PLAY TABLE

... solves their rainy day problems—and yours! Too, it's easily converted into a study table or desk when the small fry sprout.

HERE'S a play table to delight any child and of a quality not purchasable anywhere. It is large enough so that a sister or brother or young guest from next door can play, too. It is edged—especially high at the back—so that crayons, toys and such will not roll off or mar the wall behind it. Its stools are excellent. They don't tip and are never lost; when not needed they revolve completely out of the way under the table.





This play table is designed for the three to eight-year-old. It will give even more service. When the child reaches the age where play tables become old stuff, this piece of modern furniture can be converted into a good study table for his or her school years.

Table top: First, select a 2 x 4-foot piece of material for the table top. This can be a piece of hard-plastic countertopping, bonded to 3/4-in. plywood. Such material comes in various bright colors and simulated hardwoods. Excellent, too, are the new pressed-chip hardboards such as are used in the example. Equally good is 3/4-in.

oak plywood, which will also withstand rough daily use.

Trim the piece chosen to 22-in. width on your table saw; then fit the edge trim of 3/4 x 2 1/2-in. hardwood. For this, first dado a 3/4-in. groove 3/8 in. deep in the trim with a Magna single-blade dado or ordinary dado; then trim the pieces to length, mitering the ends. The 12-in. disc sander does the best mitering job here. Next, rip the front piece down to leave only 1/4 in. above the groove, and similarly rough-cut the side pieces as shown. Finish the side pieces to exact size with the 2 1/4-in. drum sander. Last, trim the rear piece and high parts of the two sides on the table saw to the 30-degree bevel shown.

Nails in the trim are not needed if you clamp the glued parts to the table top. Blocks and wedges on the shop bench, or furniture clamps, can be used, clamping at the corners especially.

Legs: The tapered table legs are next. On the lathe, turn these of the same hardwood chosen for the trim. You will note in the photo how the eccentric tailstock of the lathe can be used to make a production job of turning the tapers. Set the eccentric at 3/8 in. offset; relevel the tailstock to the same height as the headstock. This places the tailstock cup 3/8 in. to one side. Clamp your skew lathe chisel to the

MATERIALS REQUIRED

Plywood, plastic-topped, or hardboard:

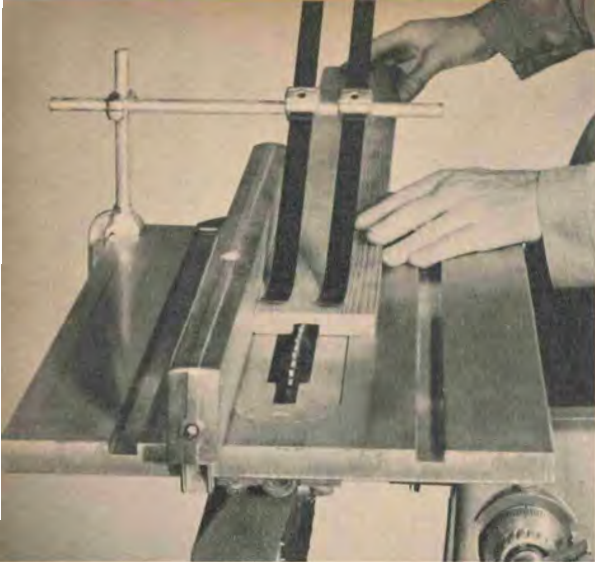
- 1 table top—3/4" x 24" x 48"
- 2 stool tops—3/4" x 16" x 16"

Hardwood:

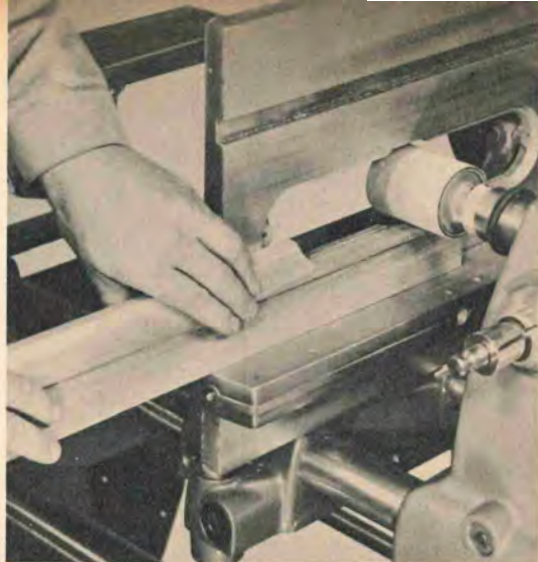
- 2 trim pieces—3/4" x 2 1/2" x 72" (cut to 48" and 24")
- 4 table legs—1 3/4" x 1 3/4" x 22"
- 4 stool legs—1 3/4" x 1 3/4" x 14"
- 4 leg supports—1 1/4" x 3" x 6"
- 2 stool pegs—5/8" x 3" doweling

Hardware:

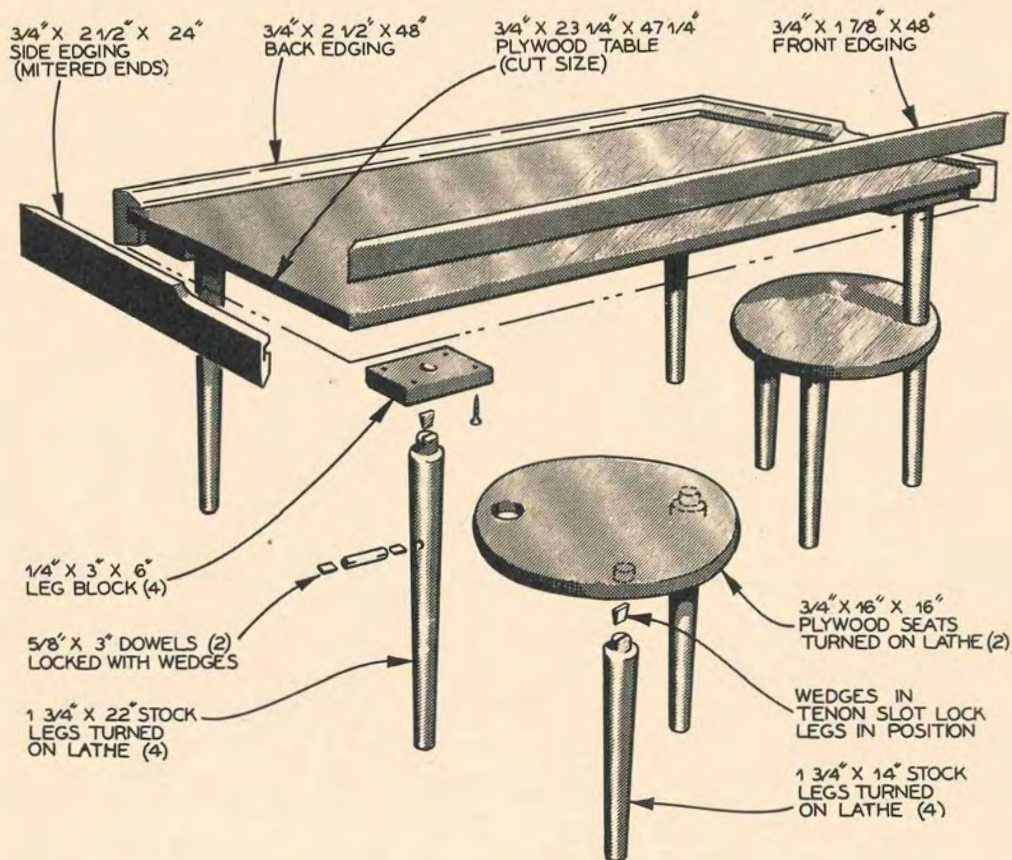
- 16 #14 f.h. wood screws
- 8 flat furniture glides (if desired)
- plastic resin glue



Hold-down helps obtain smooth dado groove in edge trim for table top and protects hands.

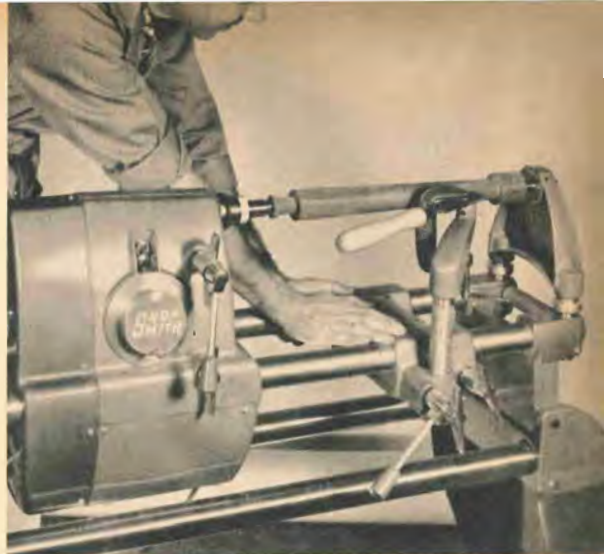


Finish and curve end of side trim's low part with 2 1/4" drum sander; feed against rotation of drum.





Miter corners by holding against locked miter gauge; advance sanding disc with quill feed.



Use of the setup shown with eccentric tailstock enables you to taper all legs, easily, evenly.

tool rest and simply slide the tool rest along, starting at the headstock and taking light cuts.

On the vertical drill press, drill a $\frac{5}{8}$ -in. hole in each of the two front legs, for the stool pegs. All four legs are anchored in 3 x 6 supports of $1\frac{1}{4}$ -in. stock, preferably hardwood. The legs' stub dowels are both glued and wedged to the supports. Make a thin saw cut in each leg's stub and drive a wood wedge into the slot after the glued leg is inserted.

There is a cabinetmaker's trick to good solid joints of this type. When turning each leg (and also the shorter legs of the stools) make a concave surface, instead of a flat surface, for the shoulder of the leg that butts against the surface of the 3 x 6 support. This guarantees that the leg will rest on the edges of its shoulder and thus not rock and loosen. When attaching the completed legs to the table, don't use glue under the supports—four $1\frac{3}{4}$ -in. No. 14 screws in each will hold securely and allow the legs to be removed whenever desired. Position the leg supports under the table as shown, and with the side that is $\frac{3}{4}$ in. from the 1-in. hole snug against the table top trim.

Stools: Using a 6-in. faceplate on your lathe, turn two pieces of $\frac{3}{4}$ -in. hardwood plywood to 15 in. diameter for the stools. These are large turnings—cut the pieces roughly to size beforehand and use the slow speed (700 rpm) of your Speed-Dial. A good trick is to turn the disc to size, stop the lathe and fill any voids in the plywood edge with a quick-drying wood putty (or

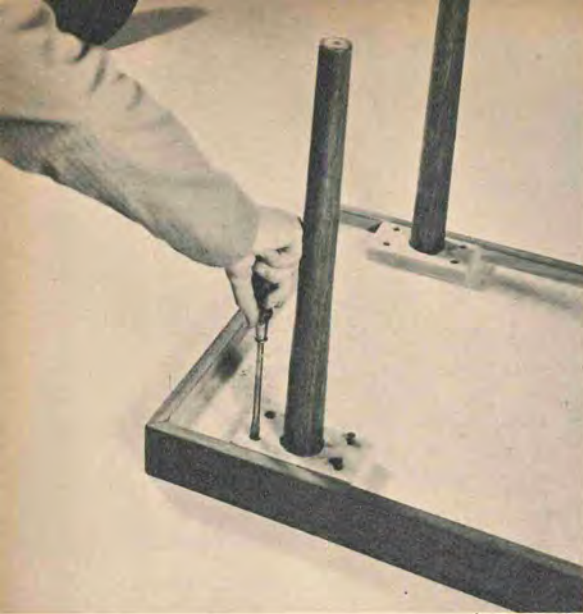
spackle in tiny holes) and then sandpaper on the lathe.

A standard expansion bit can be used to drill the $1\frac{3}{4}$ -in. hole in each stool. Clamp the work securely to the table, so that the threaded bit cannot pull it up. Note that the 1-in. holes for the stool legs are blind, are drilled from the bottom but not through. You can use the screw holes left from the faceplate to establish the position for three holes in each stool exactly 120 degrees apart.

The stool legs are turned exactly as the table legs—with a $\frac{3}{8}$ -in. offset on the eccentric tailstock. A good method of finishing all of these tapered legs is to use the 12-in. sanding disc, held against the turning. Wood wedges are inserted in sawcuts in the stub-dowel ends of the stool legs *before* assembly. With glue applied, the legs are driven into place in the blind holes of the seats.

Assembly: Finish the table and stools as desired. On the example, a French-polish finish of 1 part shellac and 3 parts alcohol was used, applied with a rubber block. Final assembly of the stools to the table legs is simply a matter of slipping the stools on the front legs and securing the stool pegs with their wedges. Do not glue these—you may want to remove the stools for some reason. Wax the pegs and the legs where the stools revolve. Flat furniture glides on the stool legs give a very smooth action—place glides on the table legs, too, to keep everything level.

(See following pages for easy method of converting it to a desk.)



Use no glue. Four screws will hold each leg securely and allow you to remove it whenever you desire.



Using the 6" faceplate on your lathe, turn 2 pieces of hardwood plywood to 15" in diameter for stools.

CONVERSION

This play table is designed for children . . . and children grow up. When a child outgrows the need of a play table, he will need a study table or desk for his school years. This modern design fills that bill.

Conversion is quite simple. You use the table legs and add shelves or drawers to raise the top to full desk height.

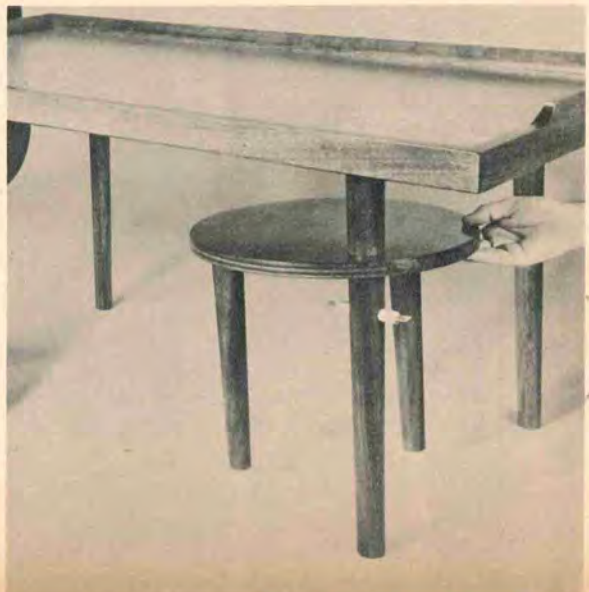
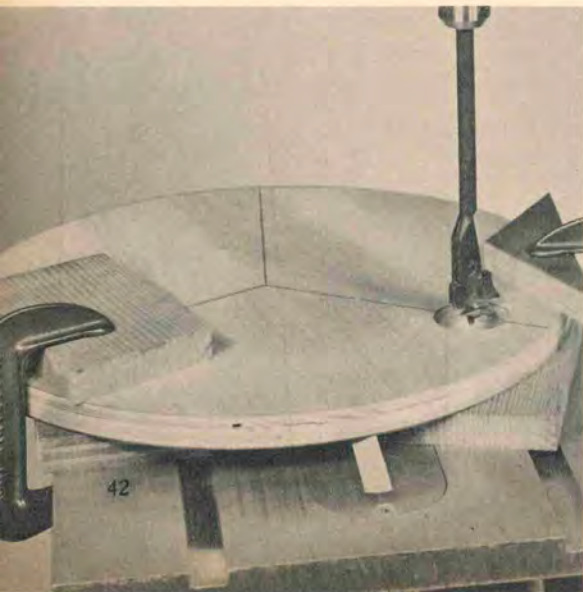
In the example—just one of many possibilities—a simple textbook shelf on the right side gives the extra height needed. It is attached to the top by five No. 14 wood

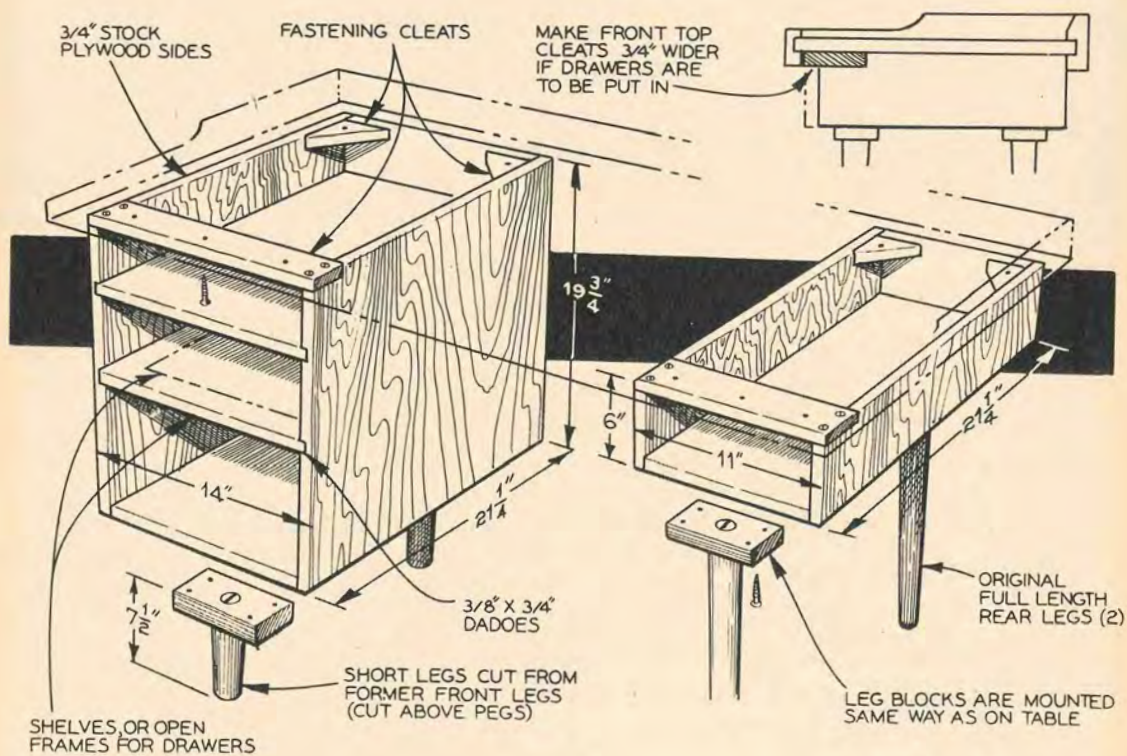
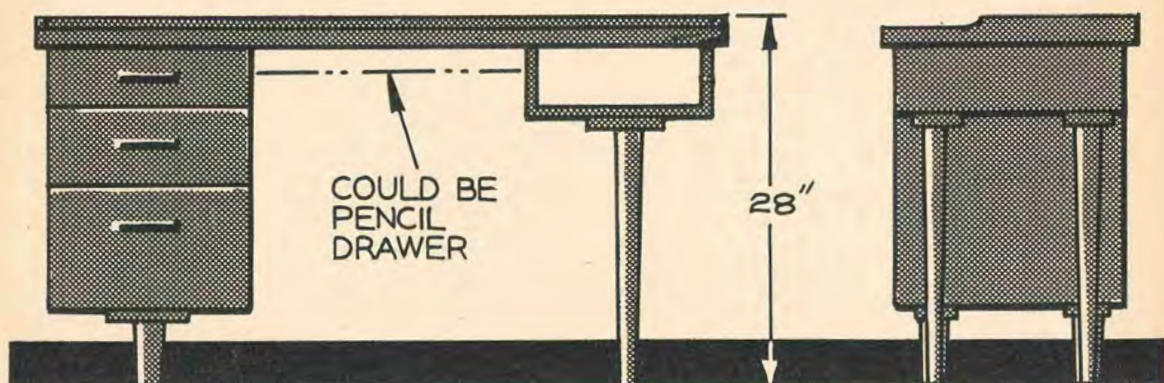
screws, and what have been the rear legs of the table are screwed underneath it. On the left side, a chest of shelves is shown—it can be left open or filled with drawers. Below the chest, the table's front legs are used, cut off just above their stool-peg holes.

The dimensions given bring the table height to 28 inches, correct for a study desk without a knee-hole drawer. If you wish to add a pencil drawer in the knee-hole space, add 2 inches in height to the textbook shelf and chest to bring the overall height of the desk to 30 inches. •

Clamp work securely to table and use standard expansion bit for the 1 3/4" holes in each stool.

Secure stool pegs with their wedges only—no glue. You may want to remove stools some day.







TOY STORAGE TRUCKS

What child wouldn't be delighted with these gleaming trucks for moving and storing his treasured toys? Or, for that matter, what weary mother whose children are encouraged to neatness by them?

HERE is a modern and practical idea in children's furniture, storage trucks that will delight all children and do much toward enticing them to pick up their toys. When one or both of the trucks are pulled out, the "garage" becomes a play table, and for that reason is covered with linoleum or plastic. It requires only 2 by 4 feet of floor space.

The garage can be built of $\frac{1}{2}$, $\frac{5}{8}$ or $\frac{3}{4}$ -in. fir plywood; the $\frac{1}{2}$ in. shown is of ample structural strength. Use your table saw

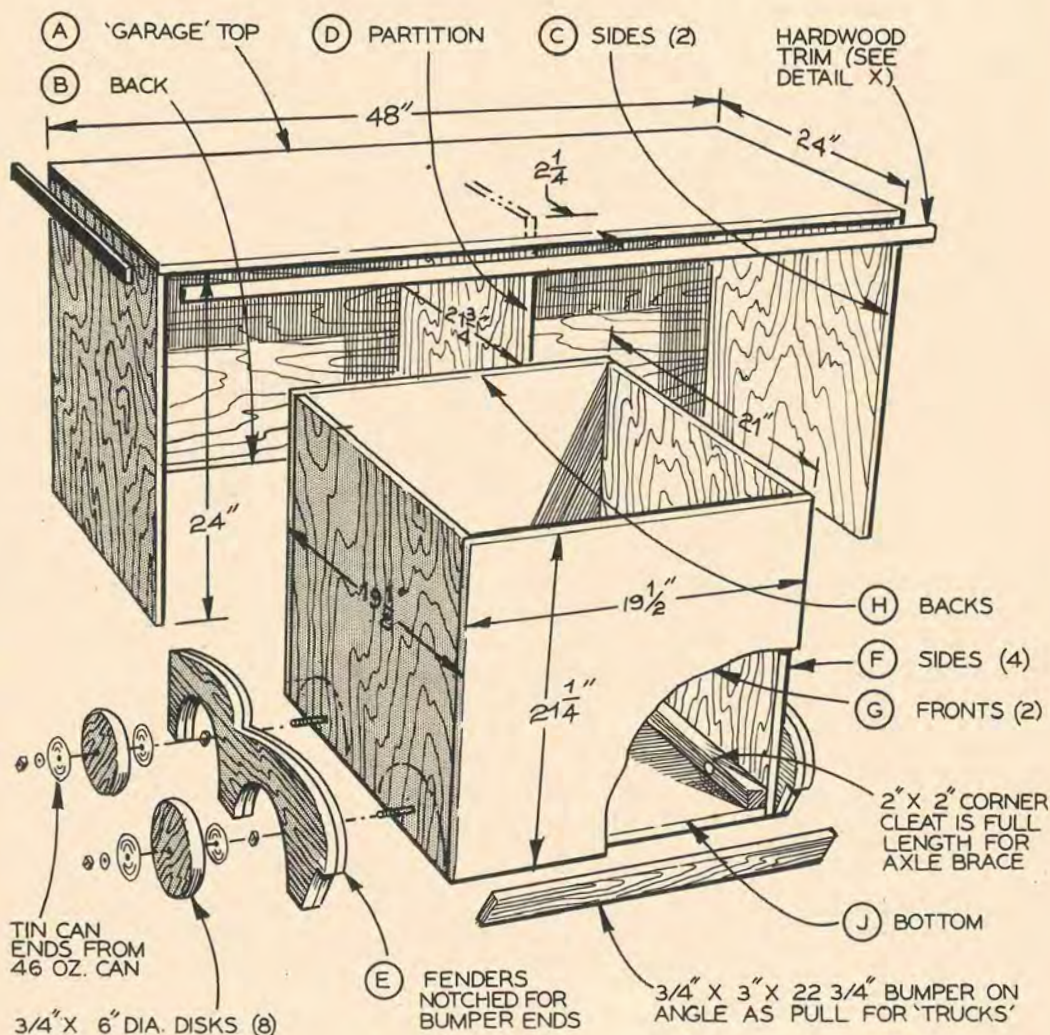
with crosscut or planer blade and the extension table to cut all garage parts from a 4 x 8 ft. plywood panel, as shown in the cutting schedule. Note that the garage divider is recessed $2\frac{1}{4}$ in. Assemble all parts with glue and 5d or 6d finish or casing nails. The new plastic linoleums or the hard plastics such as Micarta or Textolite are the best table top materials to use. Cement whichever one you use to the garage top, trim and smooth its edges and then attach the $\frac{1}{2}$ x $\frac{3}{4}$ -in. hardwood trim to all sides.

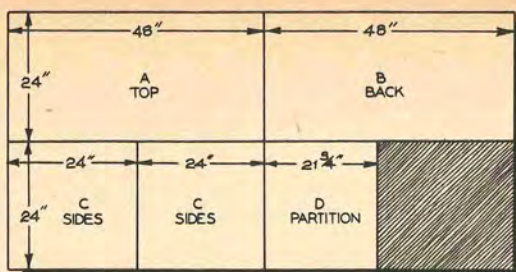
The two toy storage trucks are basically simple boxes, as shown, and are cut from $\frac{3}{4}$ -in. plywood on the table saw. Assemble the boxes with glue and 6d finish or casing nails. Use the same on the 2 x 2s that support the axles. From the scaled fender diagram, draw a full-size pattern of a fender on paper ruled off in 1-in. squares. A double thickness of $\frac{3}{4}$ -in. plywood is cut to the pattern for each fender. If you have the jigsaw for your multi-purpose tool, you can nail the two pieces for each fender together beforehand—the jigsaw with any heavy blade will handle the $1\frac{1}{2}$ -in. thick-

ness easily. If cutting the pieces by hand with a coping saw, cut them before nailing together. Fill any edge voids with wood putty and finish, as shown, with the $2\frac{1}{4}$ -in. drum sander on the inside curves and with the 12-in. disc sander on the fenders' outside curves.

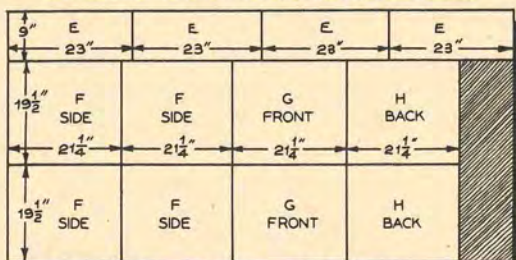
The front bumpers, notched into the fenders, are placed at an angle to serve as handles for pulling the trucks out of the garage.

The trucks' $6\frac{1}{2}$ -in. diameter wheels can be turned on the lathe, as described under SERVING WAGON. As shown here, they

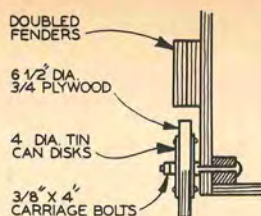




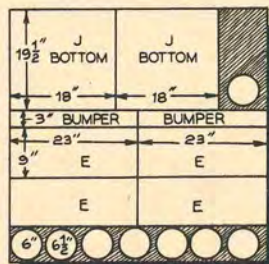
ONE SHEET OF 1/2" X 4 FT. X 8 FT. PLYWOOD FOR 'GARAGE'



ONE SHEET OF 3/4" X 4 FT. X 8 FT. PLYWOOD FOR 'TRUCKS'



SECTION THROUGH AXLE



3/4" X 4 FT. X 4 FT. PLYWOOD



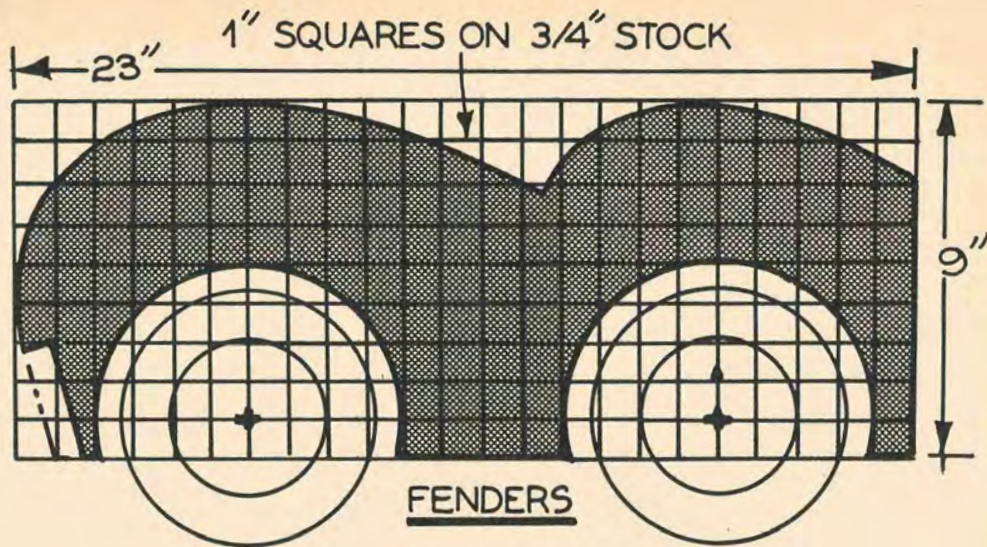
Pieces for the garage and trucks are best cut out with a planer or crosscut blade, using the rip fence on the multi-purpose tool's extension table.



The accessory jigsaw will easily cut the 1 1/2" thickness of the doubled plywood fenders. If doing these by hand, cut out the 3/4" pieces separately.

can also be cut on the 12-in. disc sander. Rough out the wheels on the table saw and drill their 3/8-in. axle holes. Insert a 3/8-in. bolt through the wheel and into the threaded hole on the miter gauge bar. Lock the miter gauge bar to the saw table with its Allen nut and revolve the work slowly to round it on the disc sander. Use a coarse paper and use the quill feed to advance the cut. This will give a smoother "turning" on plywood than could be obtained with any lathe.

"Chrome" hubs for the wheels are obtained from 4-in. tin can lids and are attached by small sheet metal screws. The wheels are mounted by inserting the 4-in. carriage bolts from the inside of the box and securing them tightly to the box with nuts. Each wheel and its two washers are then attached and a second nut on the outside holds the wheel. As this nut is not tightened down, use one of the new self-locking nuts or place a drop of acetone cement on the bolt threads to prevent



Fill veneer voids with wood putty, sand wheel openings and inside corner shown with $2\frac{1}{4}$ " drum sander. Elsewhere, finish with 12" disc sander.



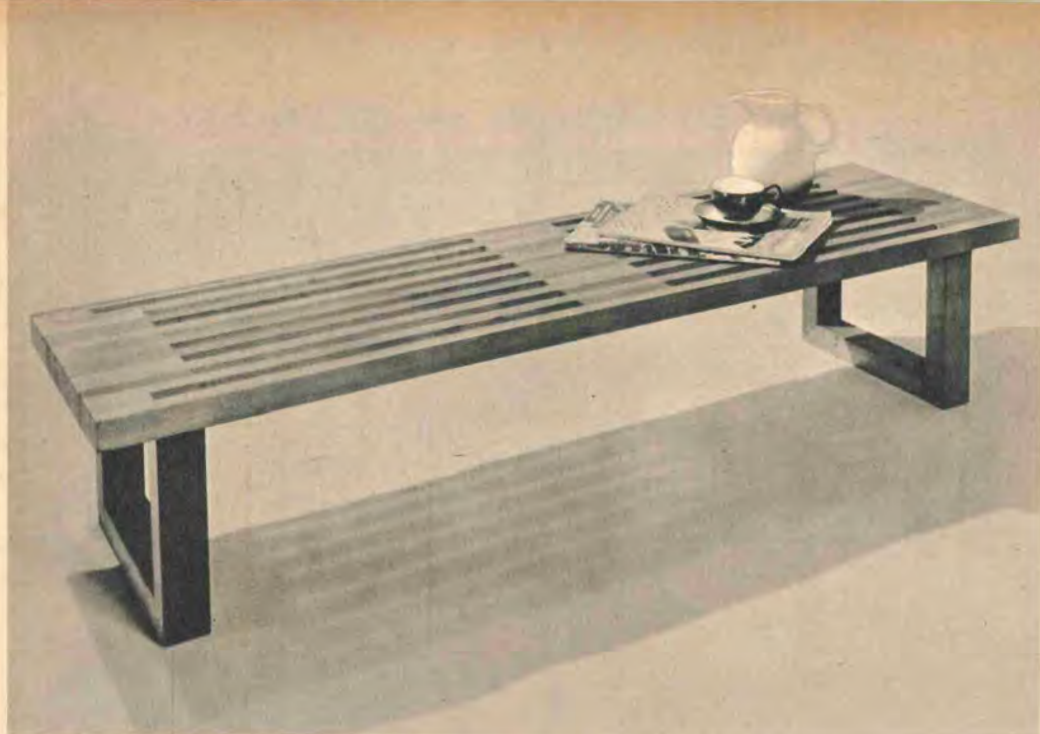
Trucks' wheels can be "turned" on disc sander with setup shown. On plywood, a smoother job is obtained thus than with any type lathe.

it from loosening with time and hard use.

The wheels are painted dull black, best before attaching the "chrome" hubs. Trucks and garage are painted any color desired. The truck faces can be done with a small paint brush, with or without masking tape, or you can use photographer's tape in lieu of paint—the black cloth tape used to bind color projector slides. Form the radiator, etc., with the tape and then protect them by applying a protective coat of either shellac or varnish. •

MATERIALS USED IN EXAMPLE

- 1 panel— $\frac{1}{2}$ " x 48" x 96" A-D grade fir plywood—garage
- 1 panel— $\frac{3}{4}$ " x 48" x 96" A-D grade fir plywood—trucks
- 1 panel— $\frac{3}{4}$ " x 48" x 48" A-D grade fir plywood—trucks
- 4 pcs.— $1\frac{3}{8}$ " x $1\frac{3}{4}$ " x $19\frac{1}{2}$ " fir—axle supports
- 2 pcs.— $\frac{1}{2}$ " x $\frac{3}{4}$ " x 6' oak—garage top trim
- 1 pc.—2' x 4' plastic lin' leum—garage top
- 8 ea.— $\frac{3}{8}$ " x 4" carriage bolts, 2 nuts and washers each—axles
- 8 ea.—4" fruit juice can lids—hubs
- 3 dz.— $\frac{7}{8}$ " No. 6 pan head sheet metal screws
- 1 lb.—6d finish nails
- Glue, linoleum cement and paint



COFFEE BENCH

Two ways to make it. By either method, you build to the size you prefer, of hardwood or any softwood leftovers. And the bench can be used indoors or out.

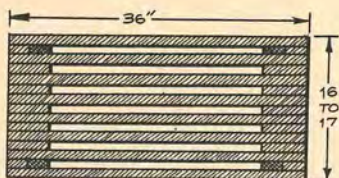
THIS contemporary coffee bench is designed so that it can be built of any hardwood or softwood—for indoor or outdoor use. You can build it of most any size, to utilize material of whatever thickness and length you have on hand or wish to obtain. Three popular sizes are shown, giving the changes in the blocking recommended for each.

The example is the 5-ft. length, built of redwood, 1½ in. thick, rub-finished with linseed oil. It may be used before a window or davenport or outside on the patio. If building with a hardwood, you can use thinner ¾- or 1-in. stock, adding one full-length board and blocks to obtain the same width for the bench.

Most details of the construction are given in the illustrations. The blocks and long members of the top will be solid, just glued together, as they have room to expand or shrink in the spacing. Or you can use nails,

too, to ease assembly. Clamping the top until the glue sets will still be necessary and do not drive any nails through the two outer pieces which would show. Use a waterproof glue. Finish the two ends of the bench on the 12-in. disc sander, as shown under BARBECUE WORK COUNTER. The 12-in. sander or 6-in. faceplate on a flexible shaft, as also shown there, can be used to level the top, if any boards had too much crown or were not assembled evenly. If you took the time to assemble all fairly level and evenly, the top will finish quickly with hand sanding or scraping. Avoid using a plane on the varying wood grains.

The legs are best cut after the top is completed—to fit the exact width obtained. Glue alone, no nails or screws, is used to secure the stub tenon ends to the bench top. After gluing, sand the upper ends of the legs down perfectly flush with the top of the bench.

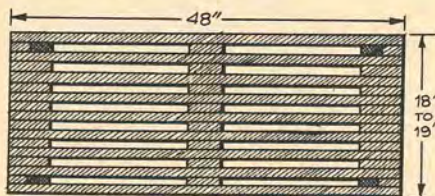


5" END BLOCKS

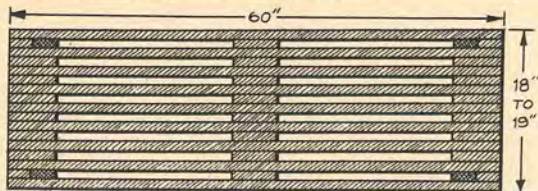
CHOICE OF THREE
TABLE LENGTHS
AND MATERIALS

SOFTWOODS ARE
1 1/8" OR 1 1/4" X 2 1/4"

HARDWOODS ARE
7/8" OR 1" X 2 1/4"

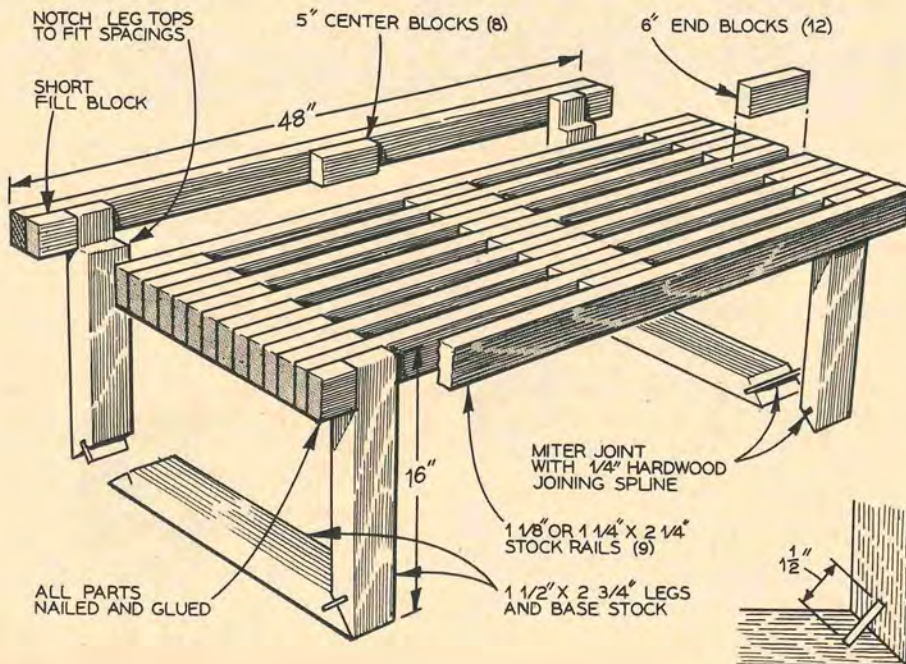
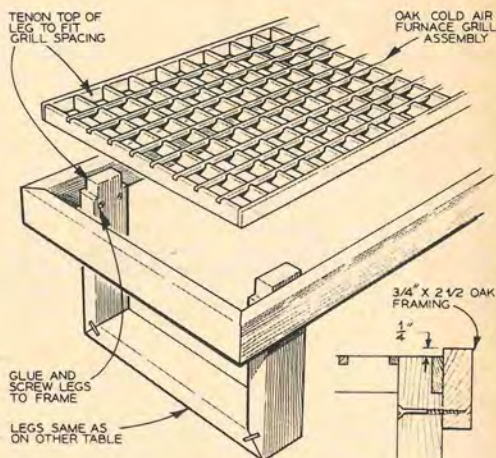


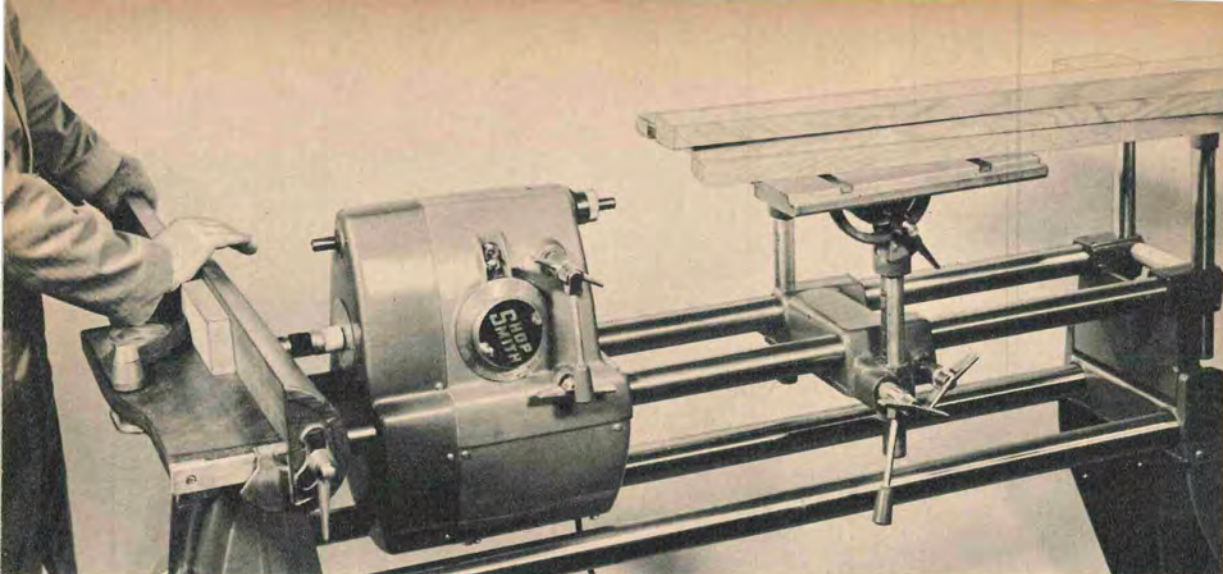
5" END BLOCKS 4" CENTER BLOCKS



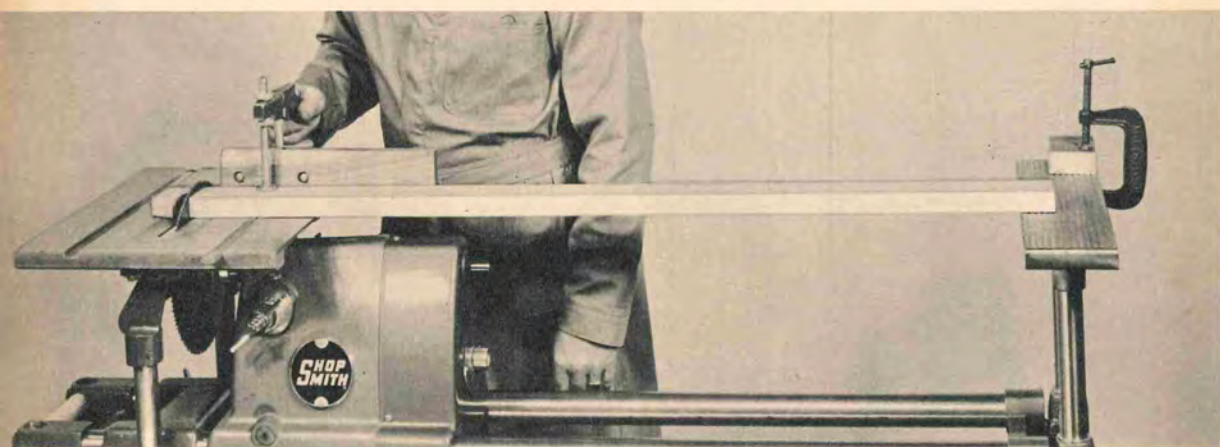
6" END BLOCKS 5" CENTER BLOCKS

ANOTHER WAY
(SEE PAGE 51)





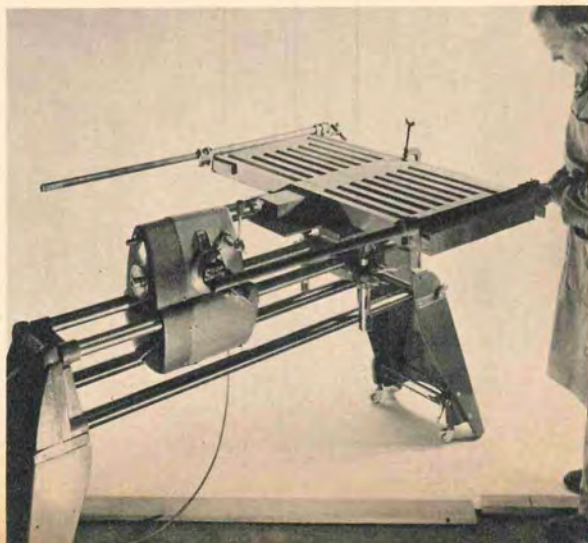
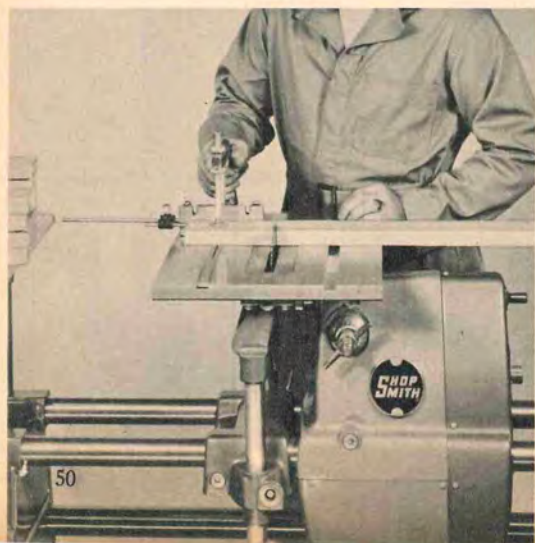
First, check stock being used for the top. If pieces aren't of exactly same width, even them on jointer.



Cut pieces for top to length with stop block on extension table. Work clears block before cut starts.

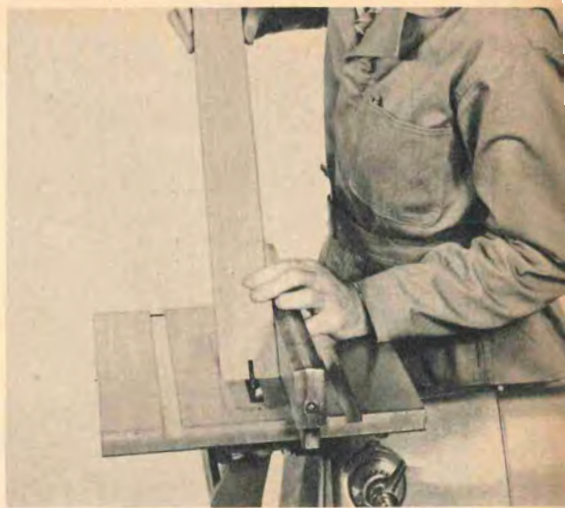
For same-length blocks, use miter gauge stop-rod. Planer or crosscut blade is best throughout job.

Quill feed is good gluing clamp. Use furniture clamps or boards with blocks and wedges at ends.

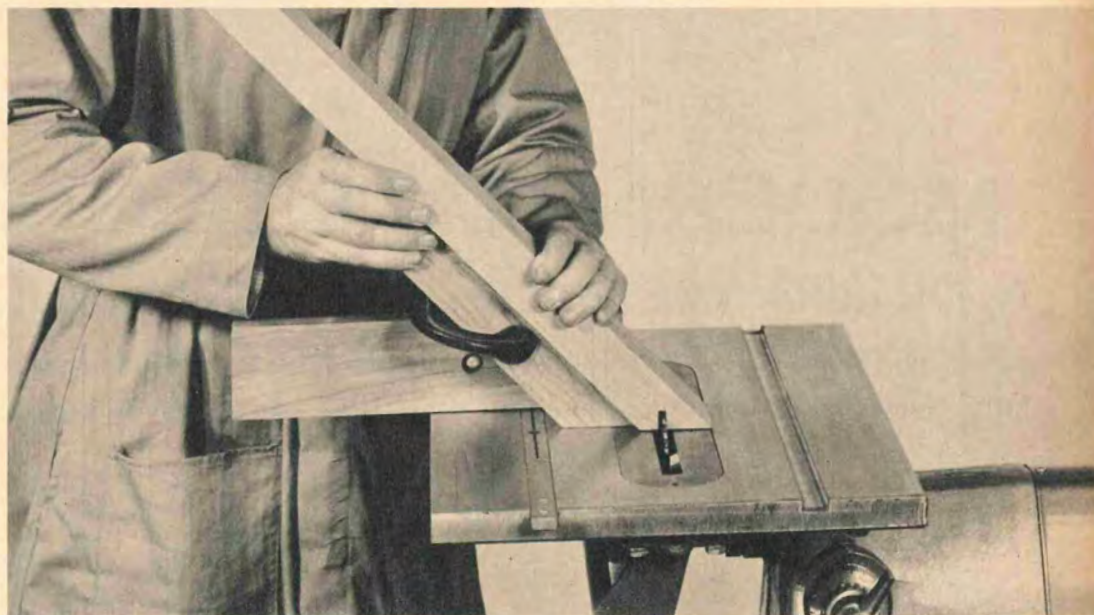




Miter legs at 45 degrees. Use of safety grip eliminates "creep." Saw at far right clears long stock.



Straight spline is good and easy. Simply guide with fence, holding mitered face flat on table.



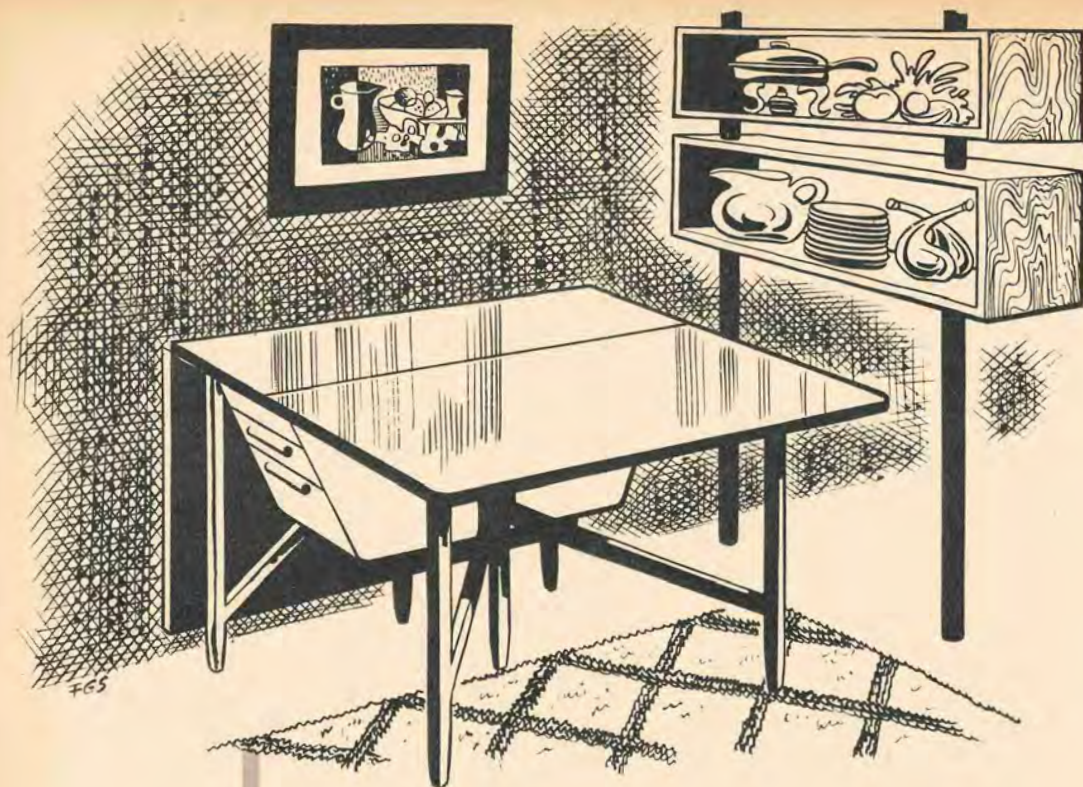
For bevel splines: clamp scrap from mitered cut to gauge extension; all pieces on it will get same groove.

... ANOTHER WAY

Here is the coffee bench built another way. From a furnace dealer obtain a large piece of the oak floor-register grilling that is used for furnace cold-air returns. Dealers have this in large sizes, which they cut to fit various installations.

The oak (or a contrasting hardwood)

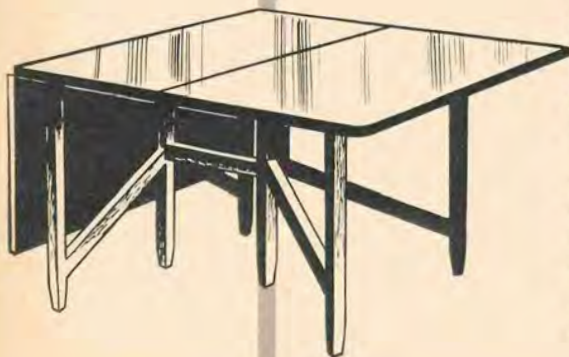
outer frame both stiffens and hides the edges of the grill. If you wish to place a $\frac{1}{4}$ -in. sheet of glass over the grillwork—to use the bench *only* as a table—position the outer frame $\frac{1}{2}$ in. above the grill. The legs are built the same as for the other coffee benches—cut to extend up through an opening. Sand them down perfectly flush after you glue them. •



MODERN GATE-LEGS

A DINING TABLE IN TWO VERSIONS

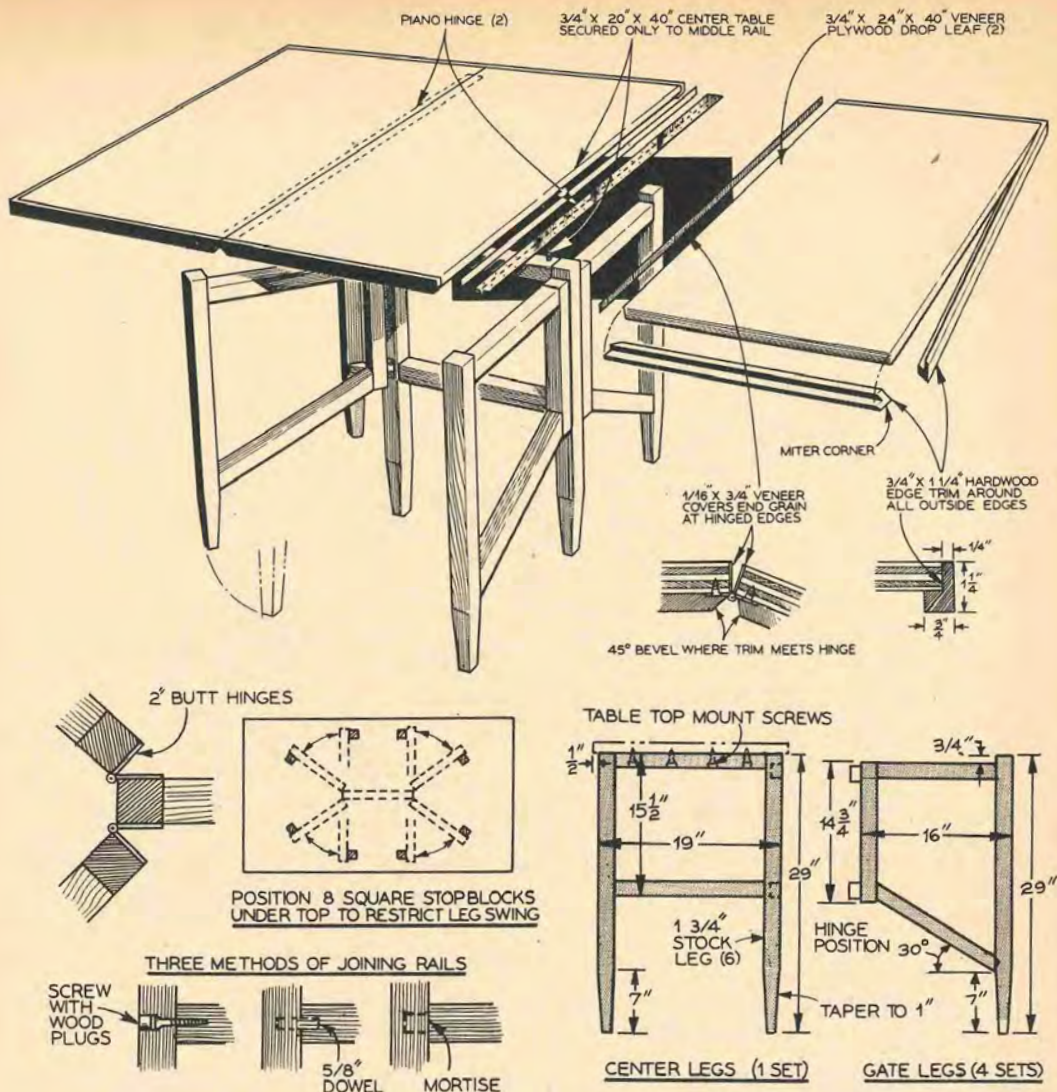
With or without the group of drawers suspended under its center panel, it's wonderfully functional, takes up little space and is easy to make.



GATE-LEGGED tables are particularly adaptable to the compact dining areas of today's homes. A good gate-leg design should fit flat against a wall and require little space when not in use. One leaf should rise without moving the table which should seat three persons comfortably in that position. When the table is pulled out and has both leaves up, it should seat six.

The modern design shown here fills these requirements, and more. Of two versions, the first gives gate-leg construction with a minimum of center legs for better seating space; with the hanging chest shown added, it includes a compact buffet or storage chest for table linen, silverware or whatever you need in your dining room.

The construction throughout has been

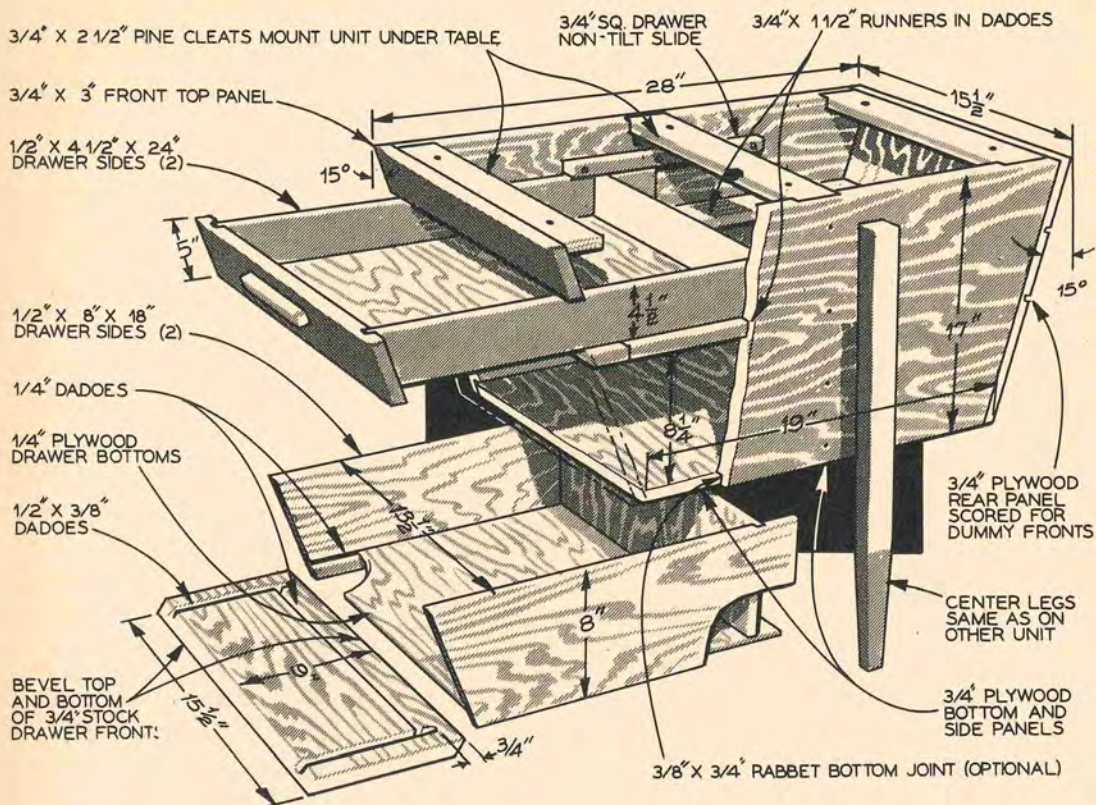


kept quite simple and, if desired, you can add the hanging chest later on.

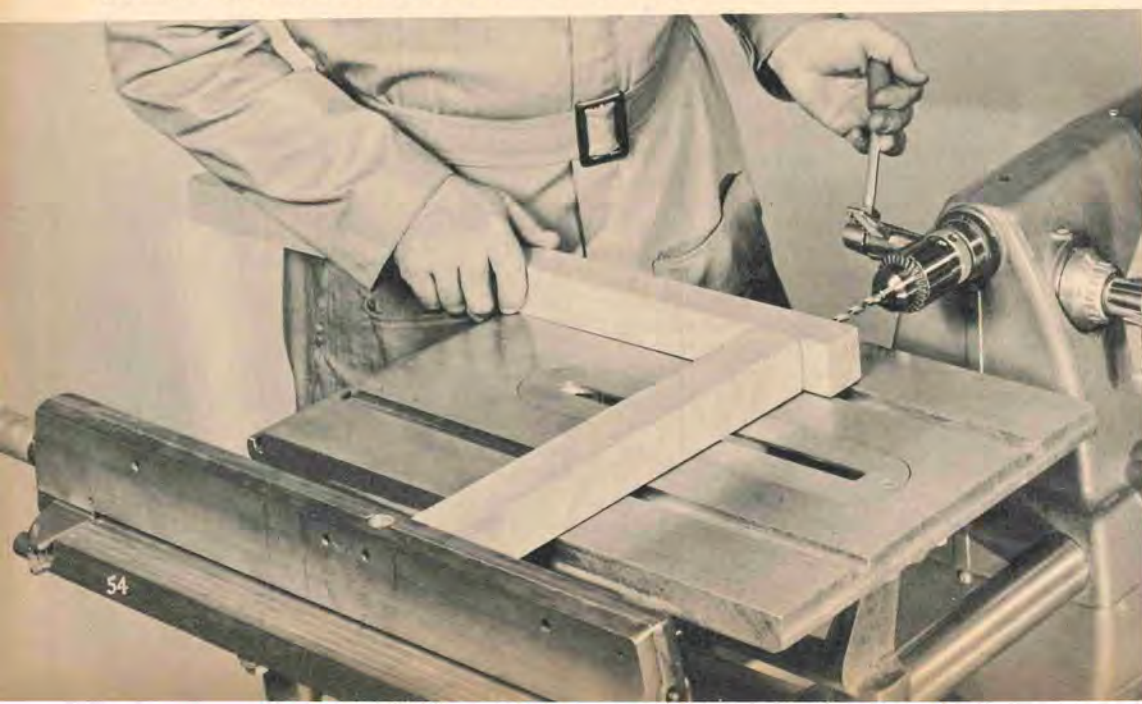
For either version, the gate legs are built the same, four alike of $1\frac{1}{2}$ - to $1\frac{3}{4}$ -in. square hardwood stock. All legs are tapered on four sides at the bottom, as shown. For this, use your table saw, jointer or 12-in. disc sander, whichever you prefer. A choice of three methods is shown for securing the legs to their rails. The screw method has the advantage of not requiring furniture clamps. Glue and one 2-in. screw will secure the joint. The two small brads shown are driven into the leg before assembly and their heads are snipped off and pointed. They help hold the two pieces in alignment while the glue sets and also help prevent any twisting of

the joint afterward. In the second method, a single $\frac{5}{8}$ -in. dowel, $2\frac{1}{2}$ in. long, secures the joint; drill the dowel holes on your horizontal drill press. For the third method, a blind mortise is cut into each leg on the vertical drill press with a mortising bit, as shown. Use glue and furniture clamps on either the second or third method. After assembly, two small glue blocks are placed in the upper corners of the center legs—when without the chest.

The table top and the two leaves are cut from one 40 x 68-in. piece of $\frac{3}{4}$ -in. hardwood plywood. Dado a $\frac{1}{2}$ x $\frac{3}{4}$ -in. groove in the hardwood edge stock. By using care, no nails (nor nail holes) need be in the exposed side of this edge trim. Small nails from underneath will hold it until the



For assembling legs of your table with screws, drill lead holes in both pieces simultaneously. For assembling with dowels, again use horizontal drill press—your assurance that all holes will be centered.



glue sets. Note that the edge trim is notched out at the hinge joints of the table. It is preferable to cut thin $\frac{1}{8}$ -in. thick strips from a $\frac{3}{4}$ -in. piece of hardwood (on your table saw, using the quill feed) and to glue them to the edges of the plywood top along the hinge joint. This edging method is fully described under STORAGE HEADBOARDS, and it prevents plywood veneers from showing when the table leaves are down. Two 40-in. lengths of brass or brass-plated piano hinge are used to hang the leaves to the top. Drill lead holes for the small hinge screws.

With the top fully assembled, turn it over on the floor and attach the center pair of legs with glue and four No. 10 screws through its upper crosspiece or rail. Attach the gate legs to the center legs with 2 x $1\frac{1}{2}$ -in. butt hinges. Next, swing the legs out to open position (to the diagonal line to table top corners) and glue small stop blocks of wood to the underside of the table there to prevent the legs from swinging farther. Glue four similar stop blocks, as shown, to prevent the legs, when closed, from swinging back under the middle of the table. While the table is still upside down, drive flat furniture glides into the ends of all legs.

The hanging chest of the second version simply cradles between the same two center legs of the table. The two rails or crosspieces are eliminated and the legs are screwed to the chest from the inside. The

chest sides are built, as shown, of the same $\frac{3}{4}$ -in. hardwood plywood as the top. You may wish to run shallow saw kerfs horizontally in these sides to simulate boards matching those of the drawer fronts. Drawer fronts are best of solid $\frac{3}{4}$ -in. hardwood, thus eliminating any need to trim their edges with a hardwood veneer. The opposite end of the chest is enclosed with similar, false drawer fronts of hardwood. Glue and nail, or dowel these in place. Use fairly flat wood or metal drawer handles on both the false and true drawer fronts.

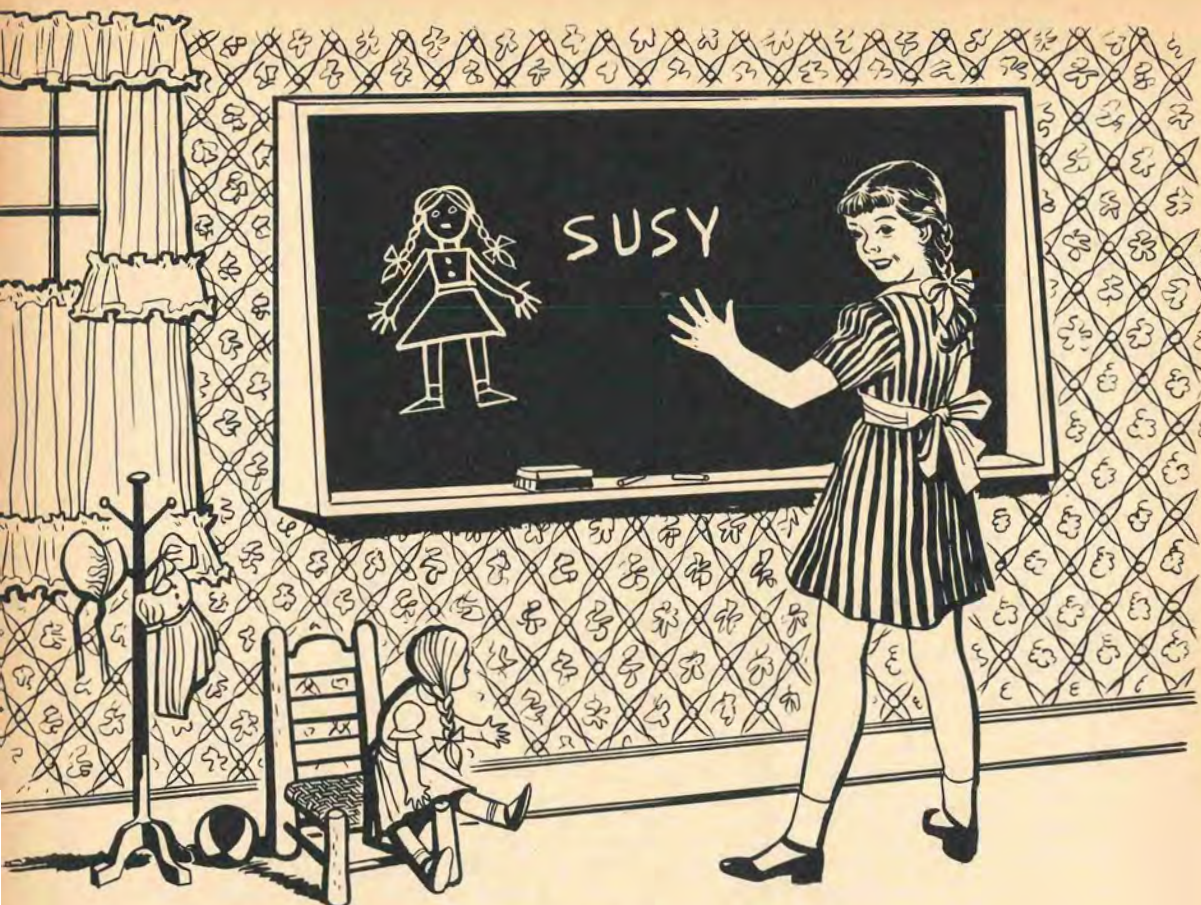
Note the three pine crosspieces shown at the top of the chest. Six No. 10 screws through these secure the chest to the table top. The upper (5-in.) drawer slides on the $\frac{3}{4}$ x $1\frac{1}{2}$ -in. pine members shown are glued into $\frac{3}{8}$ -in. deep slots dadoed into the plywood sides. An anti-tilt block is glued and nailed to each side above the top drawer—to prevent it from tilting when pulled out.

You can use a dado blade in the table saw or a $\frac{1}{4}$ and a $\frac{1}{2}$ -in. router bit in the horizontal drill press to run the grooves in the drawer fronts and drawer sides. The photo shows how the drawer-bottom groove in the front is run at a 15 degree angle. Only glue is needed to assemble the drawers. Note that the back of each drawer is placed forward of the ends of its sides. On the upper drawer place the back 6 inches forward, on the lower drawer 1 inch forward. •

For mortise method of assembling legs, use vertical drill press with mortising bit and hold-down.

Inside drawer front, grooves are easily routed. For $\frac{1}{4}$ " groove here, table is tilted 15 degrees.





BLACKBOARD FOR CHILDREN

... enclosed by hardboard on all sides corrals the chalkdust and keeps the small fry's masterpieces off fresh wallpaper.

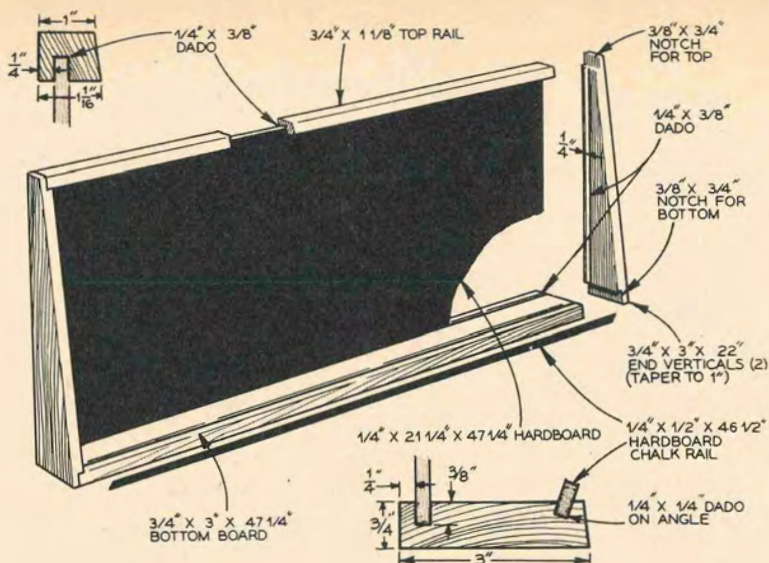
THIS children's blackboard is enclosed on all sides, a design that helps to eliminate chalkdust from the floor and discourages little Will or Polly from extending a drawing onto the wallpaper.

It requires only a 2 x 4-ft. piece of tempered hardboard and a bit of any softwood or hardwood on hand. First, trim the hardboard to $21\frac{1}{4}$ x $47\frac{1}{4}$ in. on the table saw. Finish it now, with one coat of a non-penetrating sealer such as DuPont Sealer Coater or Co-Ca-Seal (because a penetrating sealer requires several coats in porous hardboard) and then two coats of

blackboard paint. Cut the four sides to size, dado the grooves and corner rabbets as shown, and assemble with glue and nails at the corners. •

MATERIALS USED IN EXAMPLE

1 pc.— $1\frac{1}{4}$ " x 24" x 48" tempered Allwood—blackboard
1 pc.— $\frac{3}{4}$ " x $4\frac{1}{4}$ " x 22" pine—two sides
1 pc.— $\frac{3}{4}$ " x 3" x $47\frac{1}{4}$ " pine—bottom
1 pc.— $\frac{3}{4}$ " x $1\frac{1}{4}$ " x $47\frac{1}{4}$ " pine—top
Glue and 6d finish nails



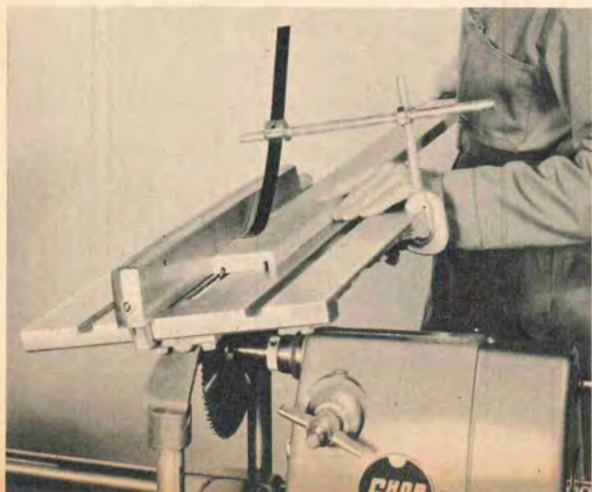
Below. Joinery, this project, is done entirely with dado blade. First you rabbet the ends, as shown.

Below. With your dado set for cut of 1/4", run all four pieces at same time for hardboard back.



Tilt table to 20 degrees to run 1/4" groove for chalk holder which is from waste of 24" width.

Note that universal hold-down is set ahead of—not directly over—the blade in all operations.





STACKING SNACK TABLES

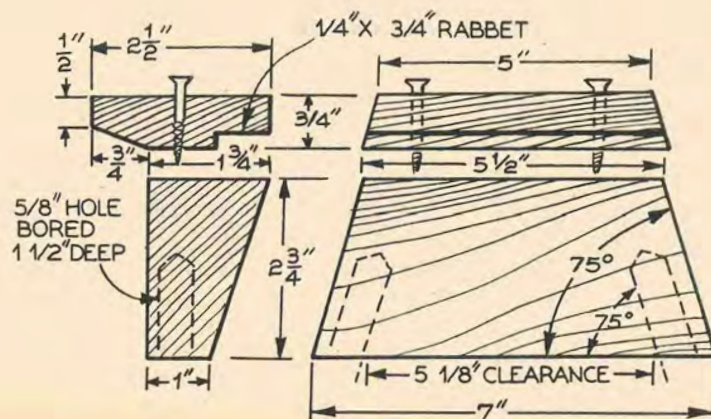
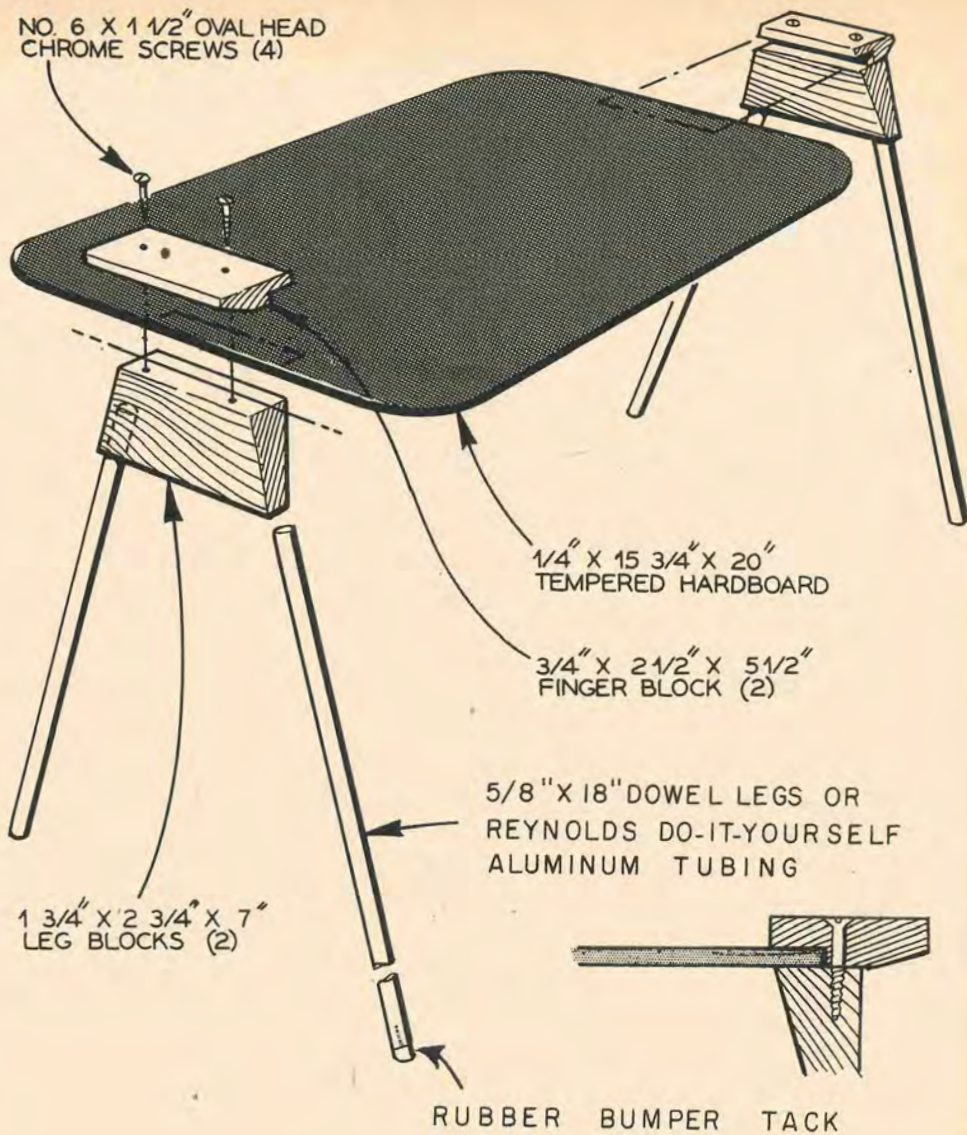
Sturdy and inexpensively made, they can be used indoors or out for a glass and ashtray, a snack or even a full-course dinner.

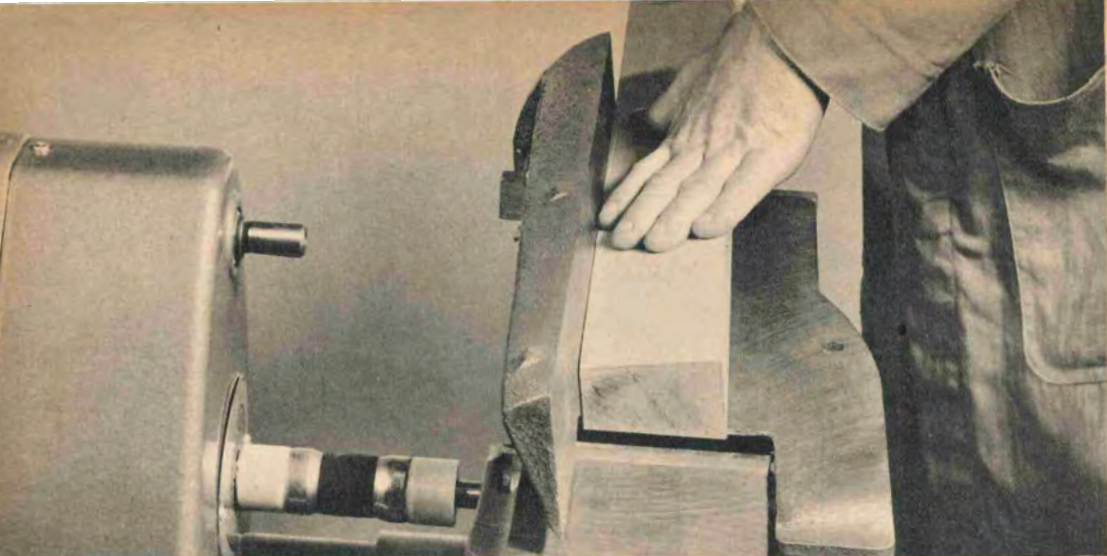
THESE stacking tables tuck away, quickly take places beside chairs for coffee or, because of their generous size, for full meals. They are as useful outdoors as in, and are not harmed by occasional showers or sun.

The examples are made of $\frac{1}{4}$ -in. tempered hardboard. This inexpensive material is dark-colored; the examples were lightened, made to resemble light-colored cork, by simply brushing on one coat of white resin sealer and wiping it off before dry. The sealer penetrates rapidly through most—but not all—of the wood chips, giving the ground-cork effect. Hardboard will also take a very smooth enameled finish to add a splash of color to your decorating scheme. Perforated hardboards, such as

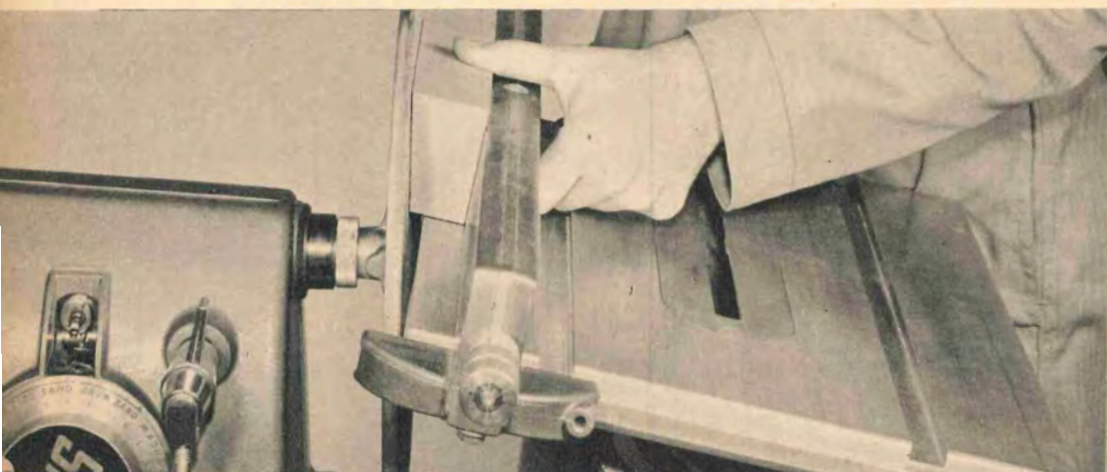
Shobord, can also be used, and give an ultra-modern effect to these little tables.

Construction is evident in the illustrations. The handle block design is such that you can use either a softwood or hardwood there. Watch your dimensions on the blocks—if not right, the tables will not stack. The two screws in each handle will clamp the block to the table top, but the joint is more rigid if glue is added. Legs are glued into the blocks and can be of $\frac{5}{8}$ -in. hardwood doweling or Reynolds Do-It-Yourself aluminum tubing. Rub tubing with fine steel wool for a satin finish, then coat with lacquer or Krylon spray. Note the rubber bumper tacks shown on the dowel legs. These not only prevent marring a floor but also stiffen the legs by deterring them from



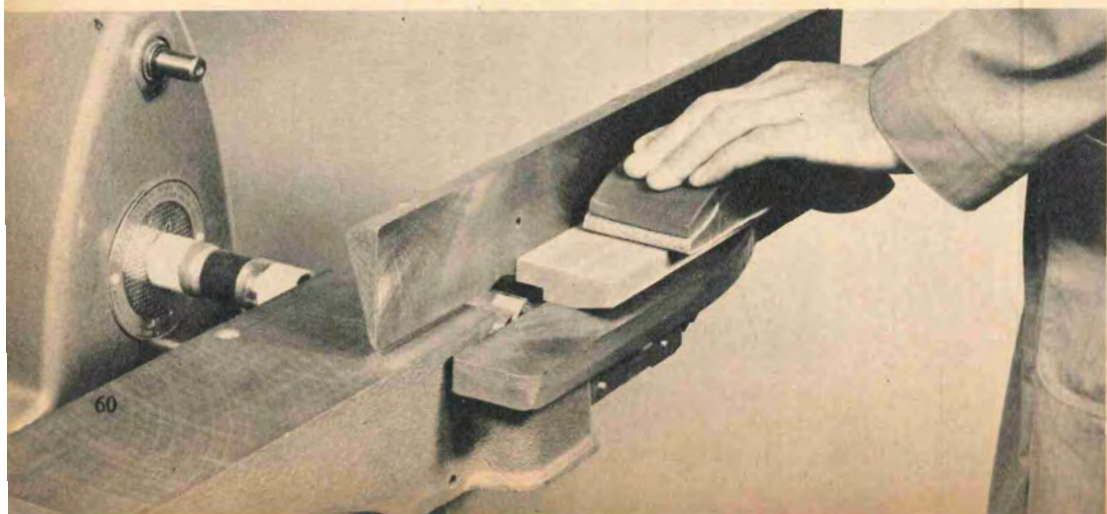


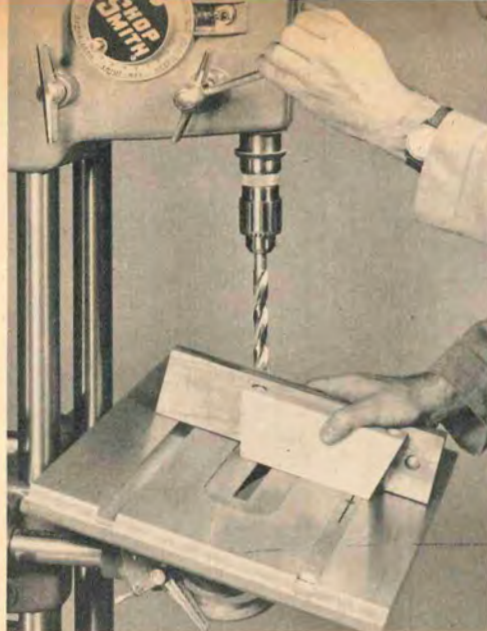
Leg supports are beveled on the jointer before they are cut into short pieces. Set fence at 10-degree slant; hold work square with the fence. Guard is removed here only for the purpose of a clear photo.



Above. Bevel may also be cut on 12" disc sander with coarse sandpaper. The Allen screw on right side of rip fence base is tightened to angle fence slightly so work can be fed from rear without "chattering."

Below. Rabbet in handles is cut on jointer, as shown, or on table saw with dado blade. Sandpaper block is used here as a hold-down. Bevel on other edge is made on jointer or with 12" disc sander.



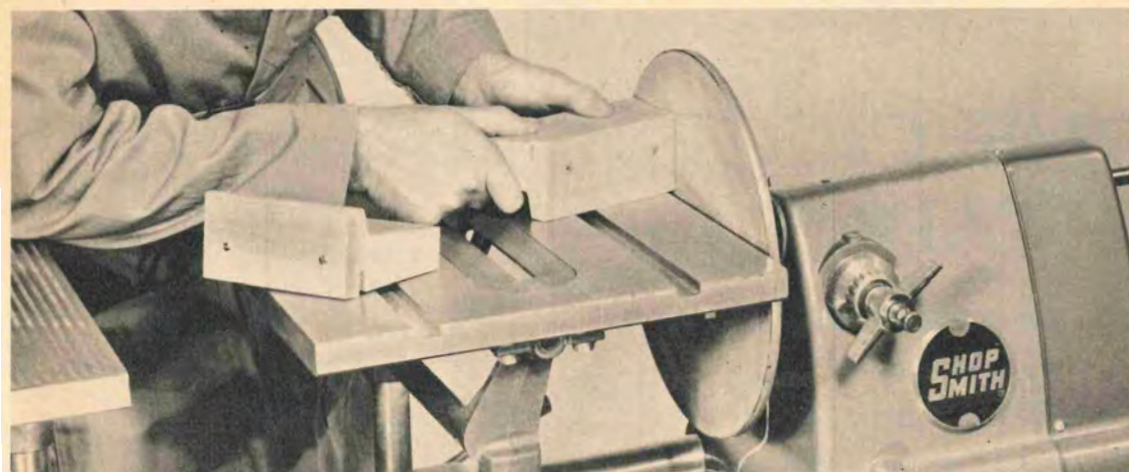


Left. For leg holes, use vertical drill press and $\frac{5}{8}$ " auger bit with table tilted 15 degrees. Miter gauge, locked in slot, serves as support and guide.

sliding apart. On the aluminum legs, plug their bottom ends with small corks, then cut off the corks on a slant to fit level on the floor. Or use the rubber bumper tacks, plugging the tubing ends with wood, glued in place, and cut off flush with legs' ends. •

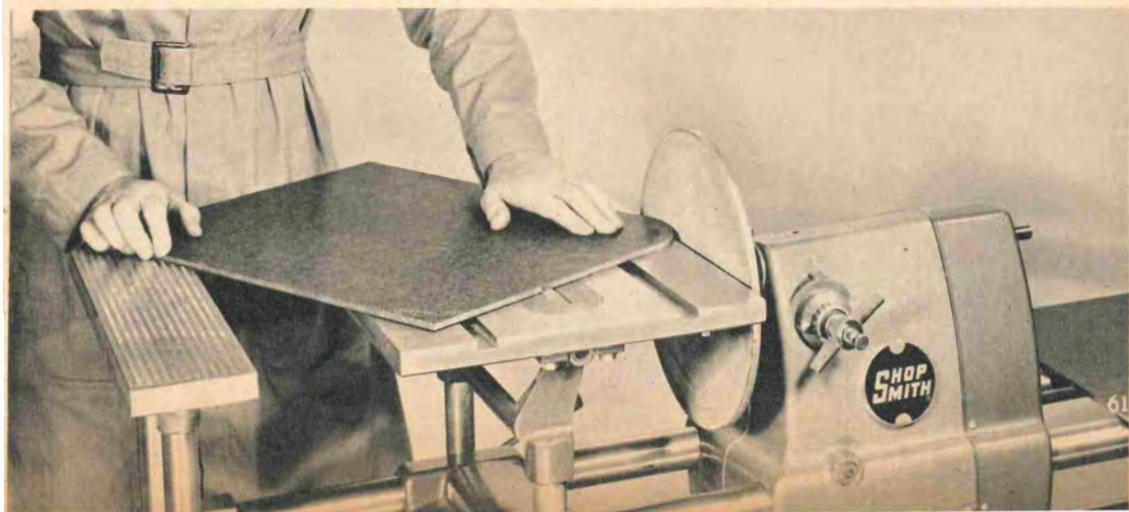
MATERIALS USED IN ONE EXAMPLE

- 1 pc.— $\frac{1}{4}$ " x $15\frac{3}{4}$ " x 20" Allwood—top
- 1 pc.— $\frac{3}{4}$ " x $2\frac{1}{2}$ " x 11"—handle blocks
- 1 pc.— $\frac{1}{4}$ " x $2\frac{3}{4}$ " x 14"—handle blocks
- 2 ea.—3 ft. lengths $\frac{5}{8}$ " hardwood doweling
- 4 ea.— $1\frac{1}{2}$ " No. 6 oval head chromed wood screws
- 4 ea.—rubber bumper tacks



Above. Don't worry about sawing the two parts of the handle block to exact fit. Instead, assemble with the wood screws and finish them together on the 12" sanding disc for a perfect joint.

Below. You will obtain three table tops from one 20" strip of the standard 4-ft. Allwood panel. On the disc sander, smooth off the sawed edges and round off the corners of the hardboard, as shown.





ONE-PIECE TABLE

Take one piece of plywood, cut out legs and supports on the jigsaw and attach. Apply one brilliant coat of lacquer or enamel, and—presto! You have a superb coffee table.

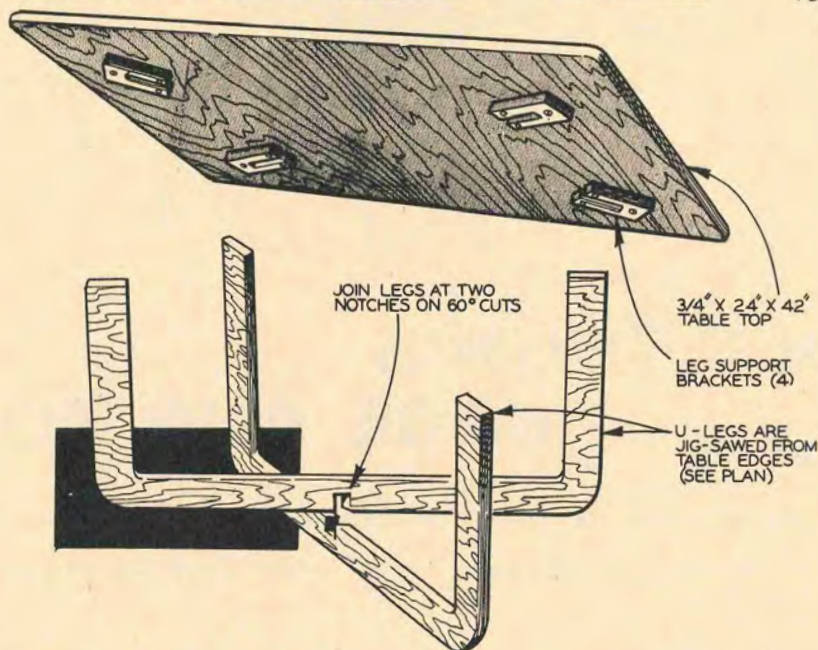
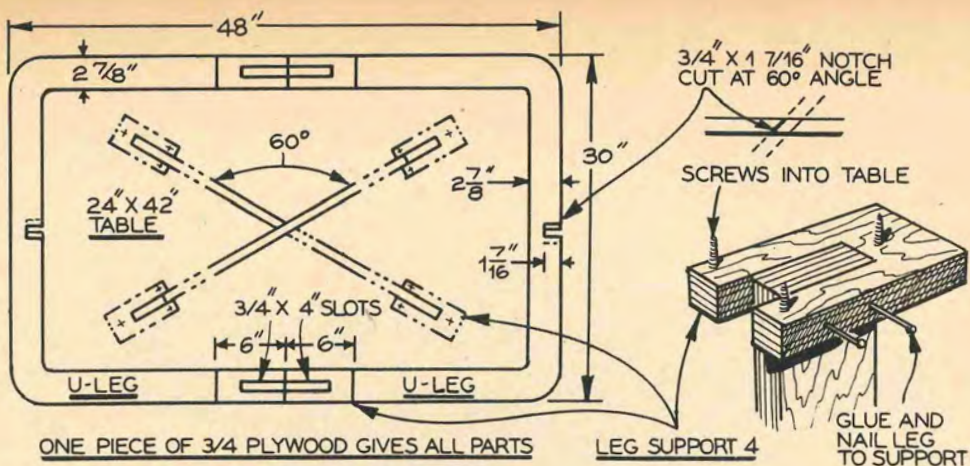
Below. Block clamped on jigsaw table and locked miter gauge provide long rip fence for jigsawing.



HERE'S a unique bit of construction. All parts for this coffee table—everything except the nails and glue—are obtained from one 30 x 48-in. piece of plywood.

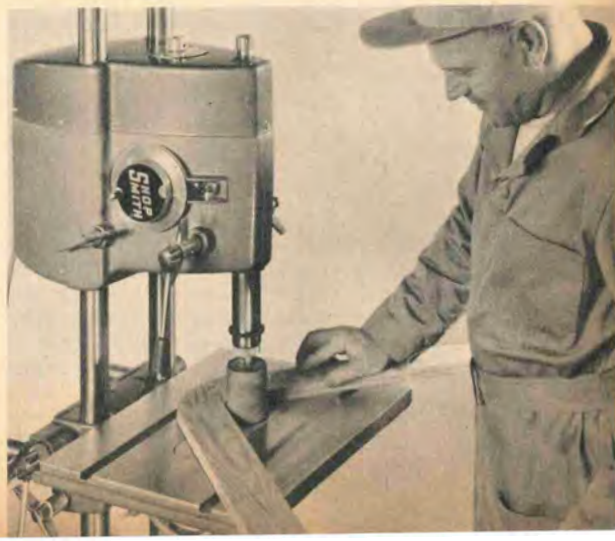
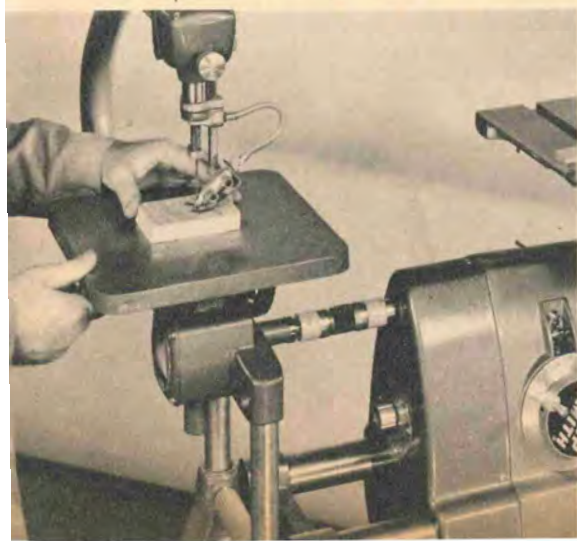
Costwise, this design, built of $\frac{3}{4}$ -in. ordinary fir plywood and lacquered or enameled, is hard to beat. For a natural finish, the more expensive hardwood plywoods will give a richer appearance. But you can inexpensively obtain an unusual finish by using one of the textured fir plywoods, such as Plyweave or Shadowood, or you can texture ordinary fir plywood yourself with a wire brush on the multi-purpose tool, which will cut only the soft summer grain. Textured fir is attractive natural. Another good finish for it is to apply one or two coats of white sealer or undercoat and then a coat of your favorite color paint, wiping the latter lightly while wet. The high spots of the textured surface will be wiped clean, showing the white and thus giving a soft two-tone effect.

The accessory jigsaw will easily make all the cuts on the plywood. Start the cut at the leg supports. If no jigsaw is available, you can use your table saw, completing the cuts at the corners with a coping saw. Fill any voids in the plywood edges with wood putty and then sand all inside corners on the $2\frac{1}{4}$ -in. drum sander, all outside corners and straight edges on the 12-in. disc sander. The leg supports are first glued and nailed to the legs, then screwed, or glued and nailed, to table's underside. •



On the jigsaw, all parts are cut from one piece of plywood. Here supports for the legs are cut.

Use 2 1/4" drum sander on inside corners; then 12" disc sander on outside corners and straight edges.



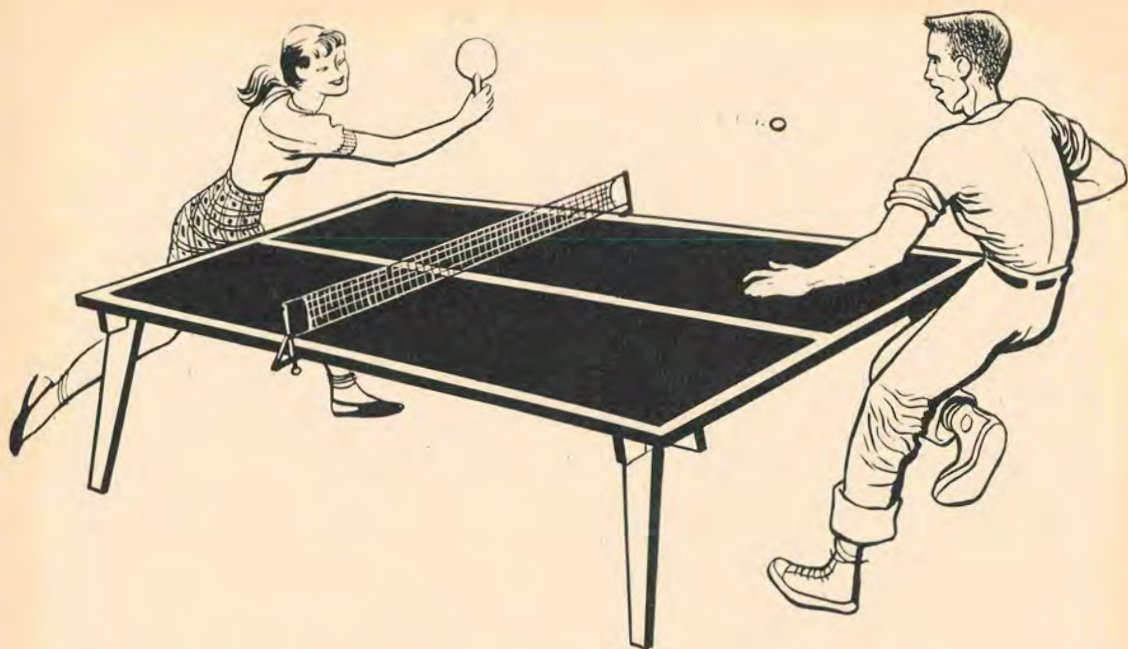


TABLE TENNIS BASE AND TOP

No nails, no screws are needed in this construction of interlocking parts. And the base of the finished table comes apart for storage.

TABLE tennis, anyone? Here is a good and different table designed by the M & M Plywood Corporation. Its base comes apart completely for storing and it assembles without a single nail or screw.

The parts simply interlock. The center brace has its notches two inches farther apart than those of the ends, thus spreading the side rails to give rigidity to the table. The legs notch into the end pieces on a slant, and thus are braced by the side rails. All parts of the base are cut from $\frac{3}{4}$ -in. plywood on your table saw—and this is a good place to use those long plywood strips left over from other projects.

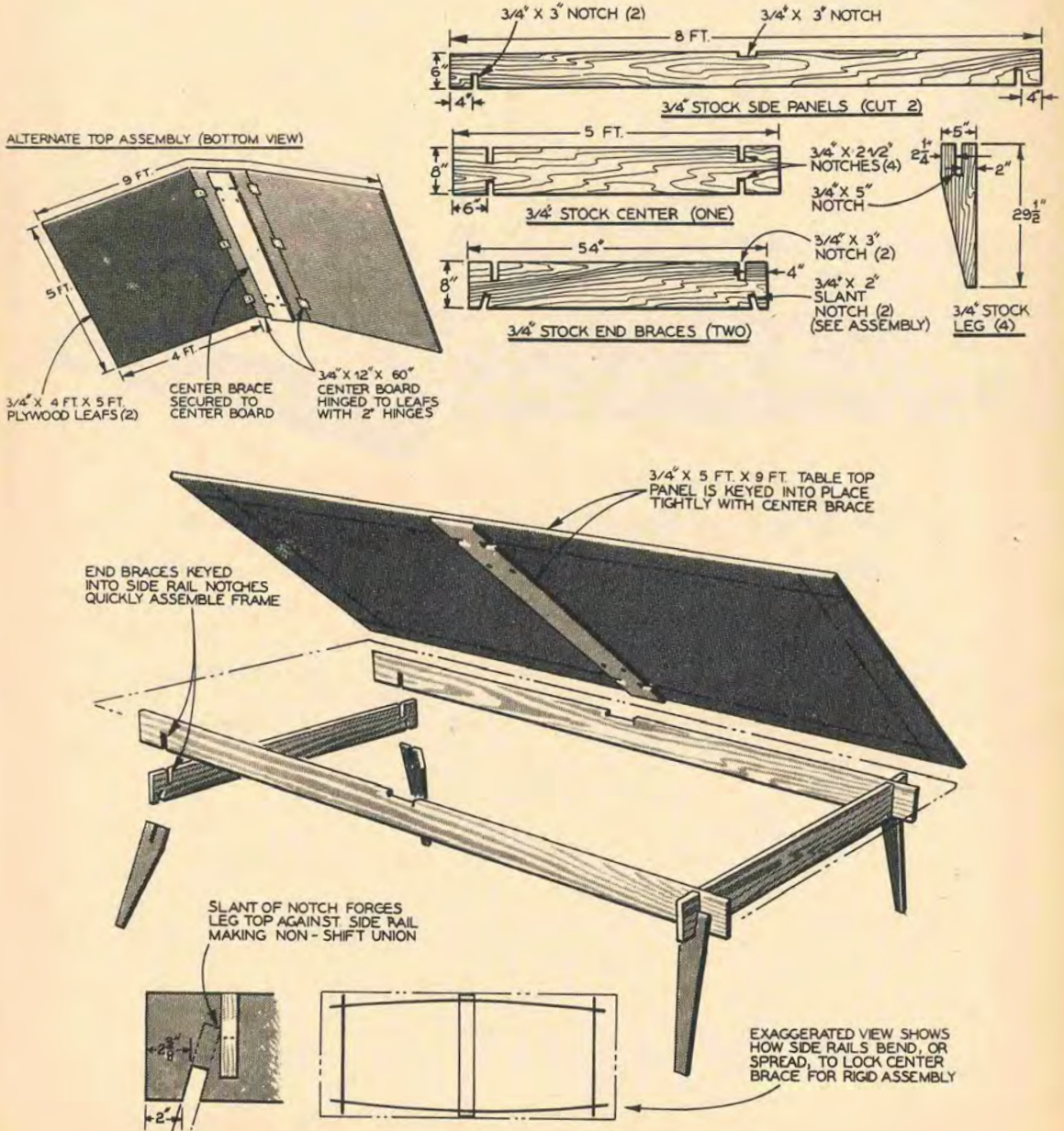
Your planer or fine-toothed crosscut blade is the best to use for both ripping and crosscutting on the plywood. The various notches in the base are cut with either of the above blades (by making several

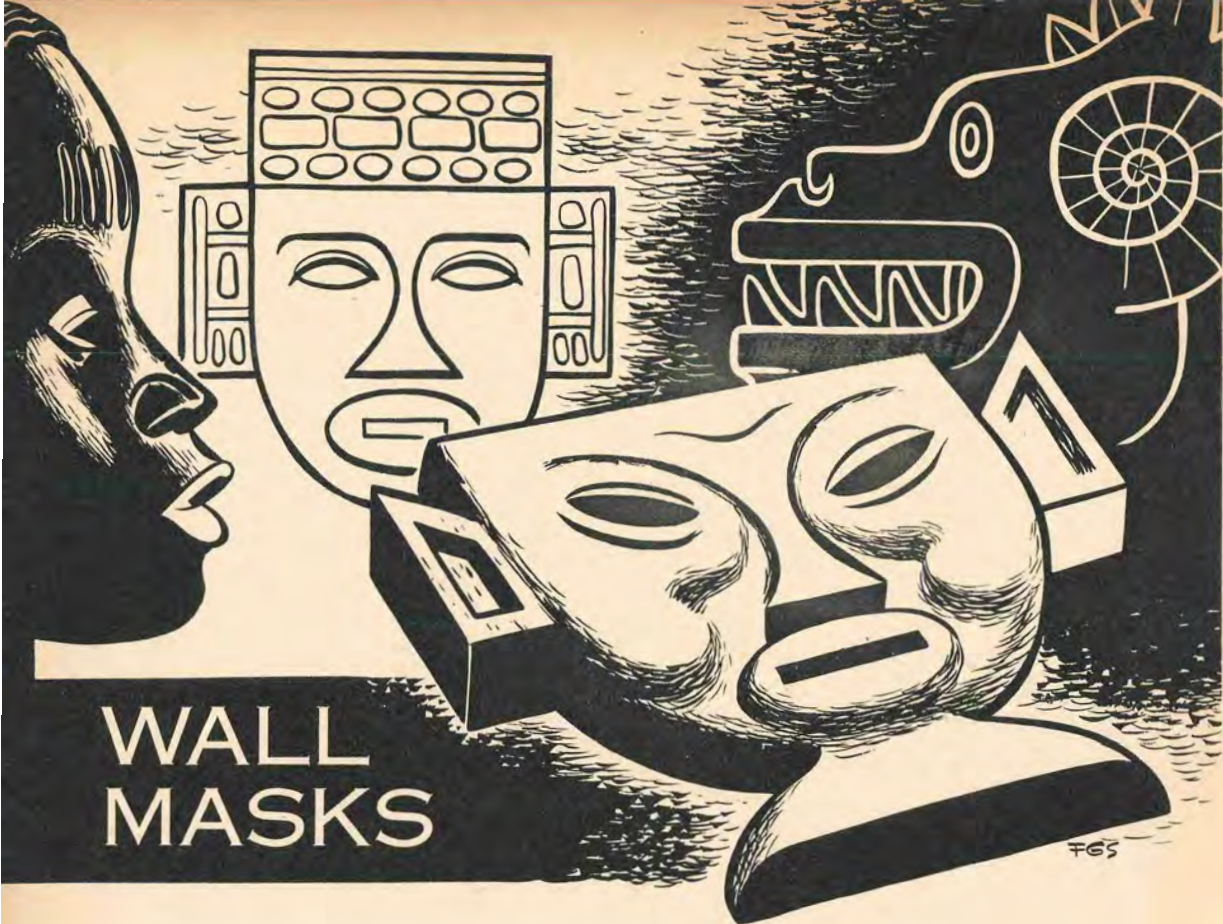
passes) or with the dado blade. Here, use your miter gauge with its wood extension to hold the work, and utilize the extension table on the longer pieces. For the slanting notches in the end braces, set your saw table to 11-degree tilt. Take advantage of the 12-in. disc sander on your power tool to smooth all outer edges of the various pieces, including the top.

The top is made of $\frac{1}{2}$ - or $\frac{3}{8}$ -in. plywood. You can order a 60 x 108-in. panel from your dealer—yes, it is available on order in 5-ft. widths. Or you can gain the 108-in. length from two 4 x 5-ft. panels, adding a 1 x 5-ft. panel in the middle and connecting all by hinges on the bottom side. The hinges shown are satisfactory and the most inexpensive; piano hinges of 5-ft. length have an advantage in eliminating the possibility of warp between them.

The clamps on the ends of your table tennis net will lock the table top to the center brace so that it cannot shift. However, as shown in the drawing, it is better to permanently secure the center brace to the bottom of the top with 1-in. No. 8 f.h. wood screws—in case the table is used for other purposes. You will find that it serves well as a cutting table for dress-making, as an outdoor table for picnics, as

a place for the electric train, and the like. If it is to be left outdoors, make certain the plywood is of the waterproof type, that it is branded "EXT-DFPA" (exterior type plywood for permanent outdoor use) on one end. A fairly dark green paint is generally used to finish a table tennis top. The best job is gained on the plywood by a first coat of a resin sealer, which will reduce any grain rise. •





WALL MASKS

The design? Simple—almost anyone can sketch a face. Decide which half is best, fold over and trace, then carve it on your multi-purpose tool.

WANT a wall mask? Very desirable for the modern living room, wall masks of wood are also very expensive. But you can make your own, complete it in one evening, and it will positively, automatically, be an original!

They are surprisingly easy to make. Set up your multi-purpose tool as a vertical drill press and adjust its table to any height convenient for you—sitting. Simply place a burr (also called a rotary file or steel cutter) in the drill chuck, pull up a chair and start carving.

You move the work. Thus, carving of masks and other small items requires far less practice than when done with one of the small electric hand grinders, where you move the tool. As you have genuine power, there is no chance of stalling the burr, and you can use burrs of decent size.

The outline of a round mask can first be

cut out on the jigsaw to save time. If straight grooves or lines are a part of your design, leave the edges of the work square and use the rip fence or miter gauge to help cut straight passes with the burr; then work down the sides with it. You can keep eyes, cheeks and other features at equal levels by using the quill feed dial stop of the drill press. In the main, you achieve uniform features by leaving the work flat on the table. On curved edges and the like, you tilt the work up from the table or hold it, freehand, against the burr.

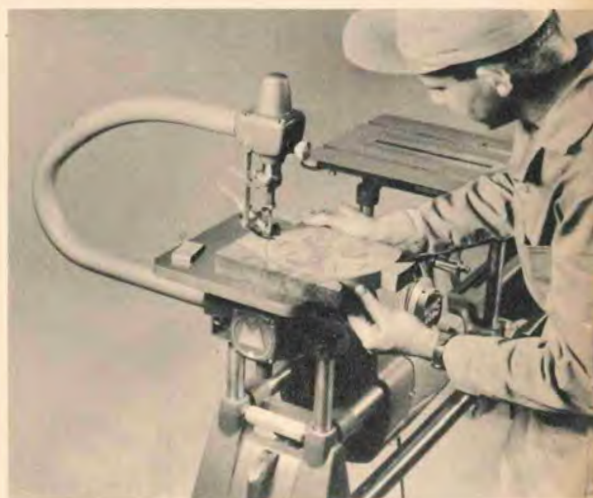
Many modern masks require no pattern; no uniformity in ears, eyes, etc., is desired. You can draw a rough sketch on paper to go by, or just start carving to see what results. On African "reproductions" and the like, a certain uniformity of facial features is needed. The trick of this is to sketch out *half* of the face you have in mind, full-size,



Above. Sit down to carve. Use the quill feed and its dial stop for cheeks, ears, etc., of same levels.



Above right. Use burr in your regular $\frac{1}{2}$ " chuck. With this stable setup, burrs can be run at high or low speed without chattering or fuzzing work.



Right. The outline of the mask can be cut out on the jigsaw or done entirely with the carving burr.

on a piece of tracing paper. Fold the paper in the middle and trace the other half of the face the same. Then, transfer the pattern to the wood with a sheet of carbon paper. This will give the uniformity desired and if your sketching is horribly grotesque—all the better!

The best rotary files to use are the larger ones, made for portable electric routers. Those of the small hand grinders cut very slowly. One of approximately $\frac{1}{2}$ in. diameter, rounded at the end or ball-shaped, will do many projects alone. A smaller, $\frac{1}{4}$ -in. ball is handy for narrow grooves and the like. If you desire a very fine one, use those of the small grinders or ask your dentist for a worn burr. Any of these can be used in the regular drill press chuck, because there is no heavy side thrust.

Carve on a good hardwood; the cost of the small piece needed is minor. In the

example, walnut was used—an excellent wood for this type of carving. Smoothing down all the grooves or hollows left by the burr is unnecessary, and it reduces both character and carved effect. With the burr, drill a small hole slanting upward in the back of your mask—for hanging it on the wall on a small nail. You may use the natural color of the wood, paint it one bright color or splash it with several brilliant hues. Go to your local museum and check the exhibits for design and color ideas. As you ponder patterns and colors, keep in mind not only the decorating scheme in your own home but in your friends' as well.

Finish the mask with two quick-drying coats of brushed or sprayed-on lacquer. Rub it down with rubbing compound (or some left-over auto polish cleaner), wax and hang. •

SEVEN DESKS

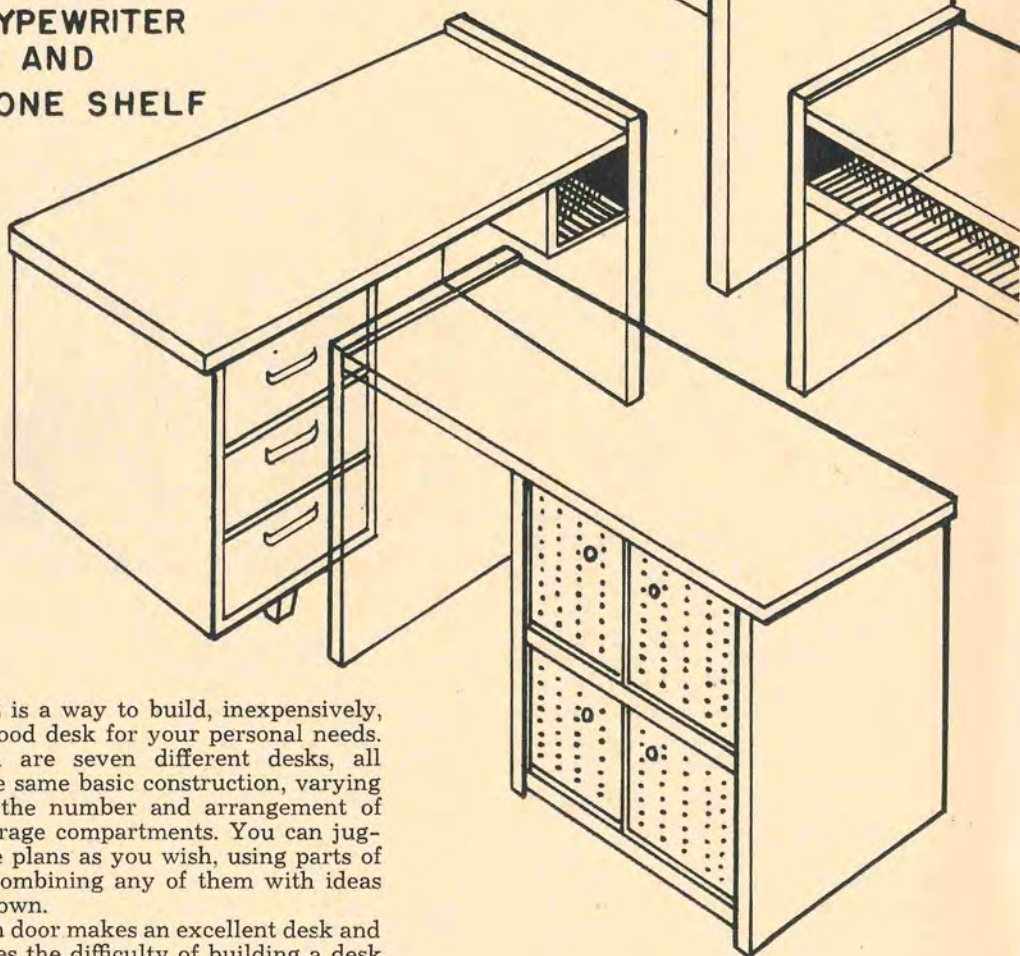
FROM A

FLUSH DOOR

From one ten-dollar door you can build almost any kind of desk.

WITH TYPEWRITER
DRAWER AND
TELEPHONE SHELF

BASIC DESK
IN A CORNER

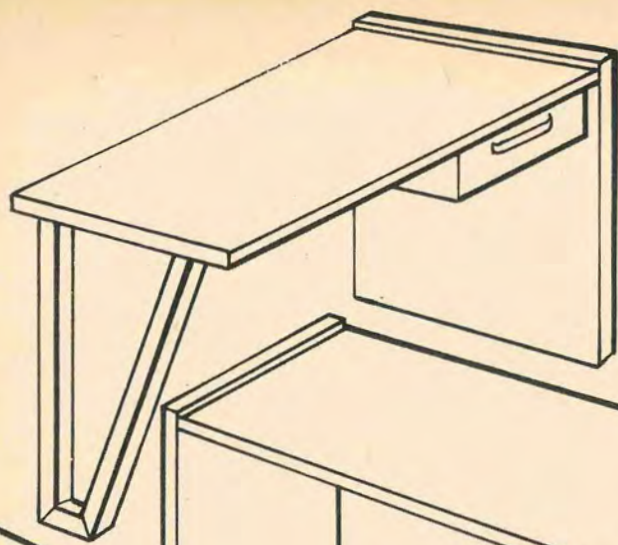


HERE is a way to build, inexpensively, a good desk for your personal needs.

Shown are seven different desks, all using the same basic construction, varying only in the number and arrangement of their storage compartments. You can juggle these plans as you wish, using parts of any or combining any of them with ideas of your own.

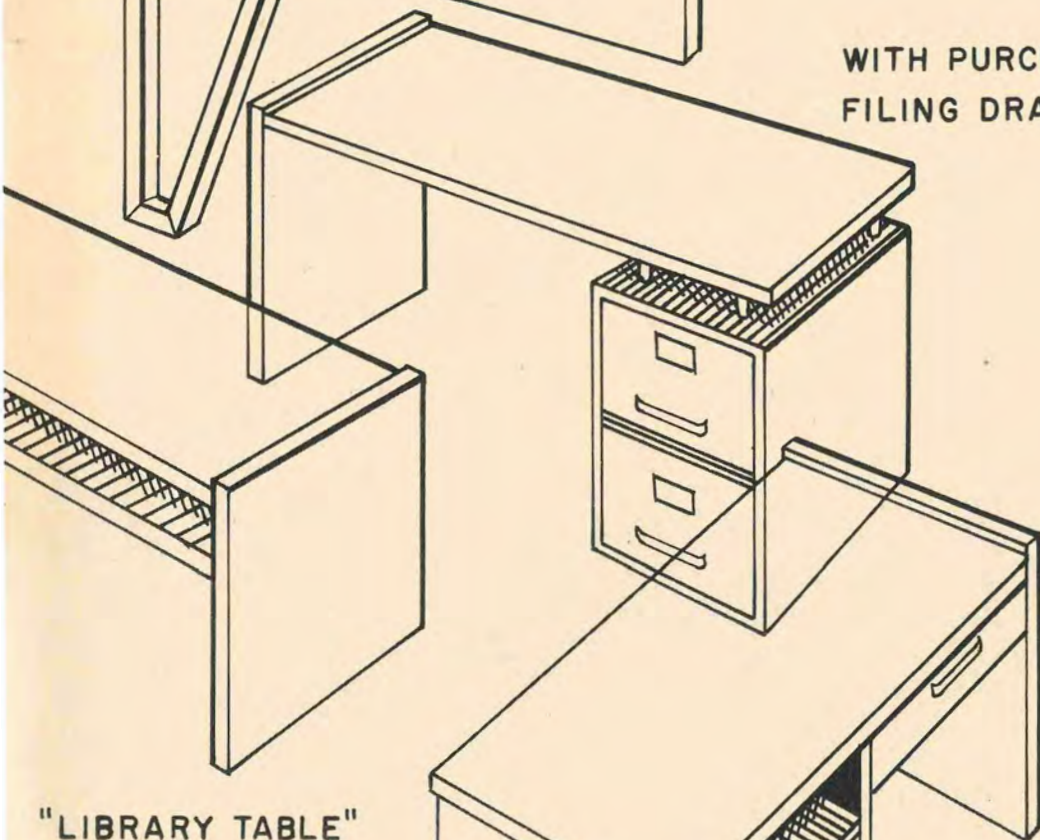
A flush door makes an excellent desk and eliminates the difficulty of building a desk top. You do not need a solid-cored door; the hollow-cored type is ample in strength and considerably less expensive. For instance, the birch door shown in the photos cost \$10.70. Mahogany and gumwood doors will cost about the same. Walnut is higher but, for economy, you can substitute birch

WITH SLIDING DOORS

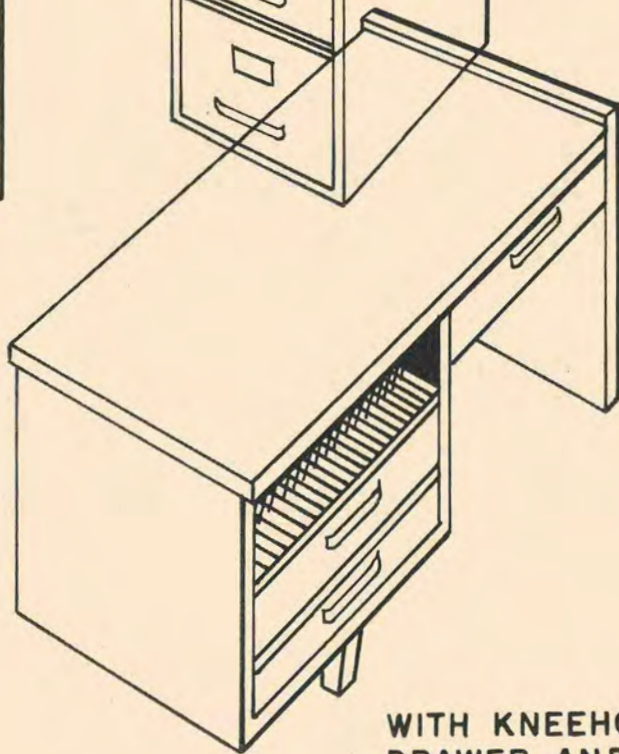


RADIO AMATEUR'S DESK

WITH PURCHASED
FILING DRAWERS



"LIBRARY TABLE"
DESK



WITH KNEEHOLE
DRAWER AND
RADIO - DICTIONARY
SHELF

and stain it to walnut. By asking for a door with hardwood edges, you can eliminate the need of any trim on your desk top. Usually, the hardwood in the edges of a flush door will not exactly match that of the top, but will be a cheaper hardwood; the veneer edges of the door faces will show, too. But its joinery is smooth and not unattractive, especially when stained or toned with wood filler. If you prefer a desk that does not show veneer edges at all, cover the edges of your door, after it is cut and assembled, with $\frac{1}{2}$ by $1\frac{3}{8}$ -in. strips of hardwood that match its face.

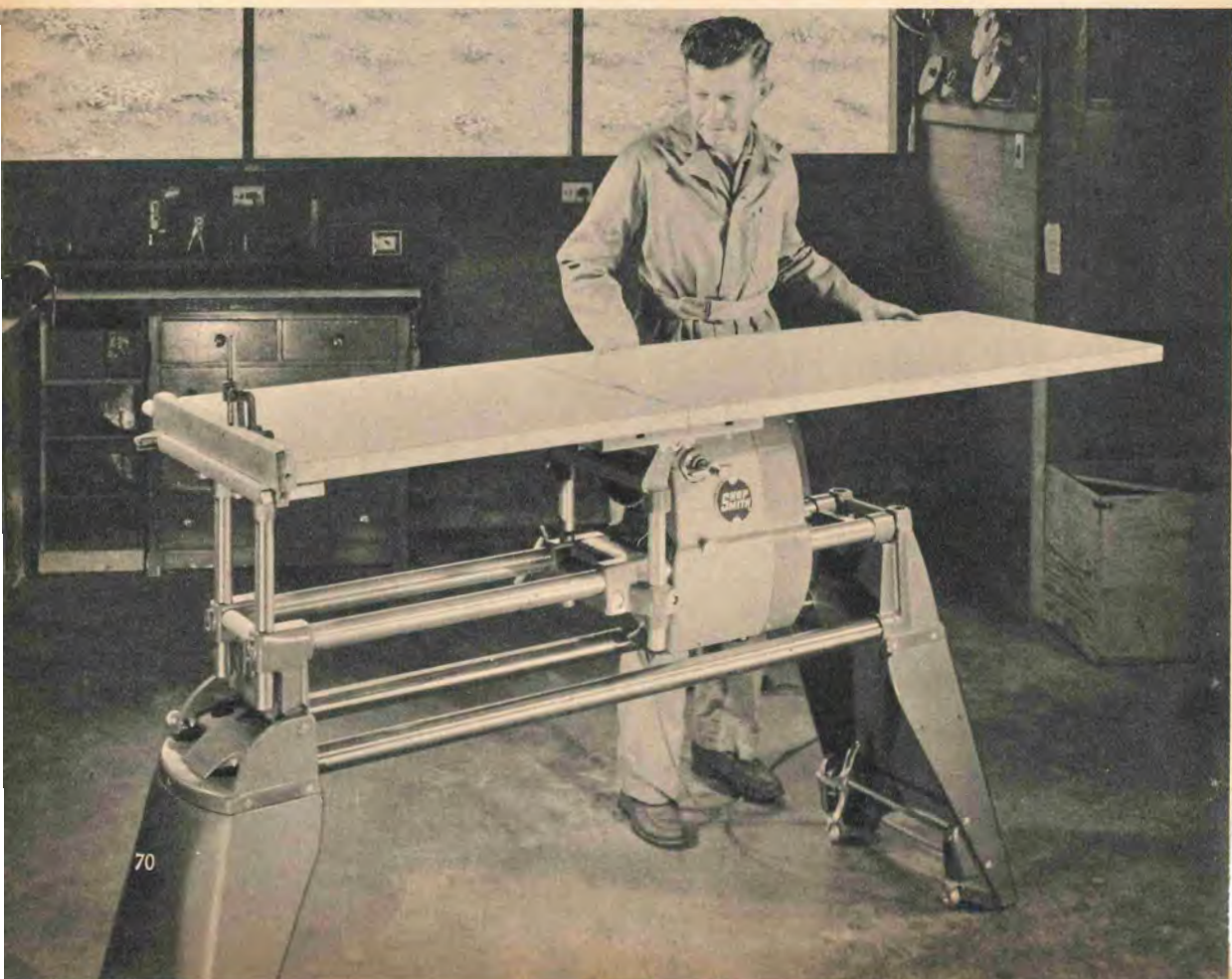
The basic plan for all of these desks is to cut 30 inches from the length of the door to gain one end, and to use a chest of drawers or other support at the opposite end. You need only the smallest standard-size door: 2 ft. by 6 ft. 8 in. When cut, it gives you a desk $51\frac{3}{8}$ in. long and 24 in. wide, which is a generous size. Most home-size desks are 42 to 46 in. by 22 to 24 in.

CONSTRUCTION OF BASIC DESK: The secret of building a good desk from a hollow-cored door lies in obtaining a firm,

reinforced joint where you cut. First, cut the 30-in. length from the door on your table saw, using the rip fence on the extension table, as shown. A trick to prevent any splintering of the veneer faces is to place a strip of cellulose tape along the saw line, top and bottom, and to saw through the tape.

You can now see your door's hollow-core construction, which, with different brands, will vary from thin egg-crating to short lengths of cardboard tubing to curved wood strips. Whichever, simply break out the hollow-coring with a chisel, about 4 in. deep into the door. Cut two solid pieces of any dry wood to fit these openings, pieces that will be approximately $1\frac{1}{8}$ x 4 in. in size. Glue these in place.

The $\frac{1}{2}$ - or $\frac{5}{8}$ -in. dowel holes shown in the drawing are now drilled into the reinforced end of the top piece (with the horizontal drill press) and in the side of the untouched end of the 30-in. piece (with the vertical drill press). This will hide both cut ends of the door, the one at the joint, the other at the bottom of the side. A good way to obtain aligning dowel holes here is



to tack a scrap strip of plywood over the work before the first holes are drilled. Drill through the plywood and use it as a template to locate the holes in the other piece. Use a plastic resin glue with the dowels to make the joint, clamping the two sections together with furniture clamps or with blocks and wedges.

The basic desk, thus completed, can simply be hung in any unused corner of a room. It is best attached to the walls at its back and end with four 2-in. metal angle brackets, which are obtainable at the dime store. Yes, drawers can be added later.

CHEST OF DRAWERS: A simple, yet good, construction for a drawer chest to go below one end of the desk is shown. It can be built for two drawers, three drawers or whatever you wish. It can be built of hardwood plywood or of solid hardwood. Note the crosspiece at the top—three screws through it and through a similar crosspiece at the back to secure the chest to the desk top with the screws in the solid wood of the hollow-core top. Also note the dadoed groove for the middle drawer slide,

as shown. With your dado blade on the table saw, make this groove the full depth of the chest—then the front and side pieces of the drawer slide, both glued into the groove, cannot help but be in exact alignment. If your chest of drawers is to rest on the floor—no legs!—simply let the two sides extend an inch below the chest's base.

The method of building drawers for this chest is fully illustrated in the accompanying diagrams. Sturdy joints will add years of wear. The drawers are cut with a dado blade or with a regular saw blade, utilizing the quill feed of your multi-purpose tool. The drawer bottoms can be of $\frac{1}{4}$ -in. hardboard or plywood—note that the bottoms fit in grooves $\frac{1}{2}$ in. or so above the bottom of the sides. This prevents a heavily-loaded drawer from dragging in the middle.

TYPEWRITER DRAWER: A drawer that stores your portable typewriter and provides a good place to use it is not difficult, when built as shown. It can be used in any desk arrangement you choose. The drawer's open side should face the desk's knee-hole space. Dimensions given are the mini-

Left. Hollow door is easy to handle with rip fence on extension table. Mortising hold-down serves only as a third hand to prevent piece from falling when cut ends.

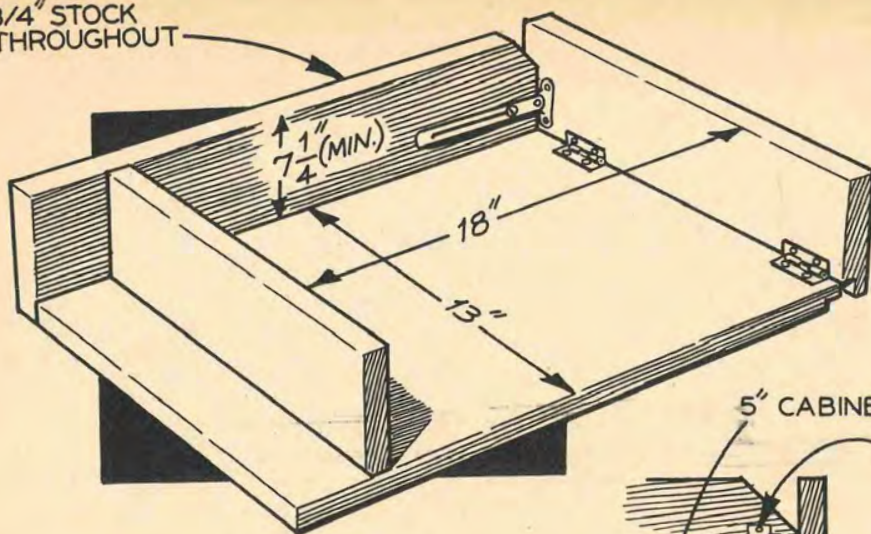
Top right. Cut ends are filled with blocks; will be hidden at joint and bottom of desk's side.



Right. For smooth drawer edges from plywood, use your 12" disc sander rather than the jointer.

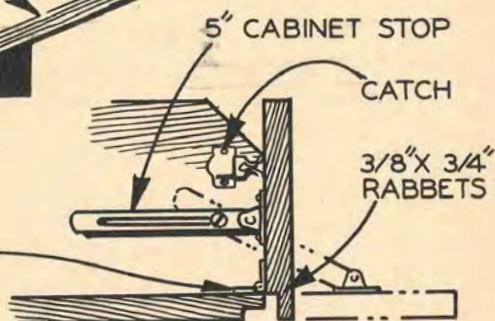


3/4" STOCK
THROUGHOUT



PORTABLE
TYPEWRITER
DRAWER

2" BUTT OR
PIANO HINGE

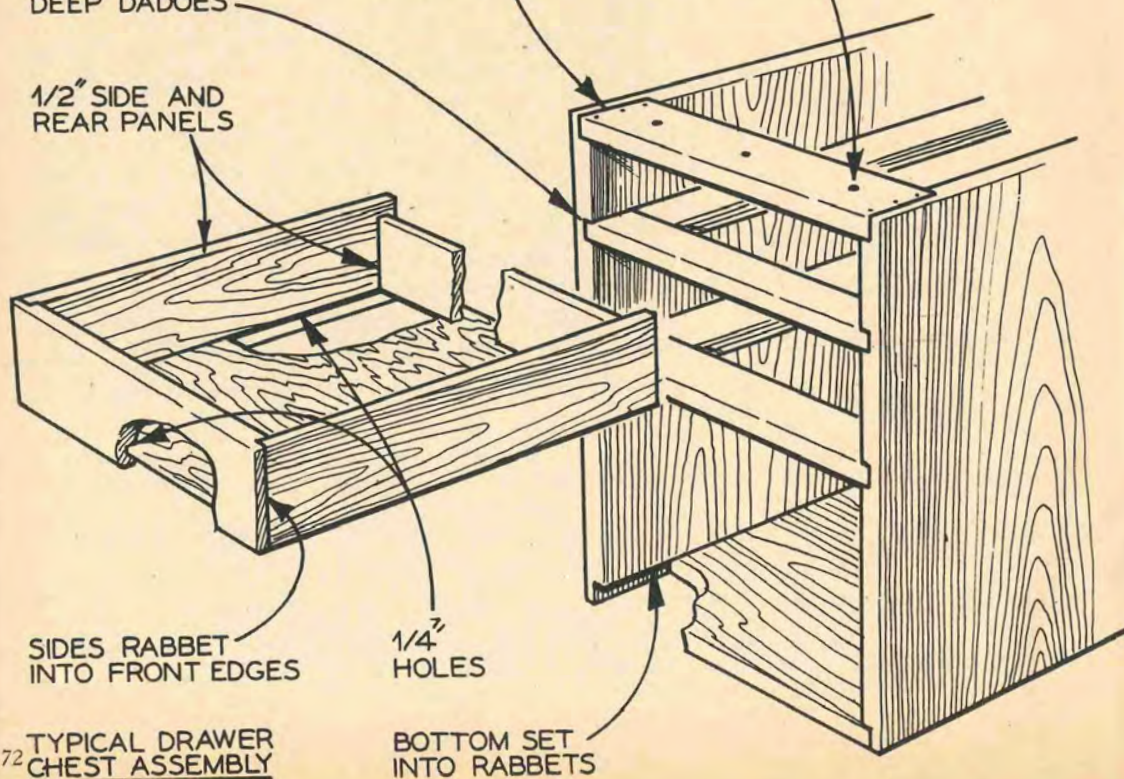


DRAWER RAILS
SET INTO 1/4"
DEEP DADOES

CROSS FRAME
SET IN NOTCH

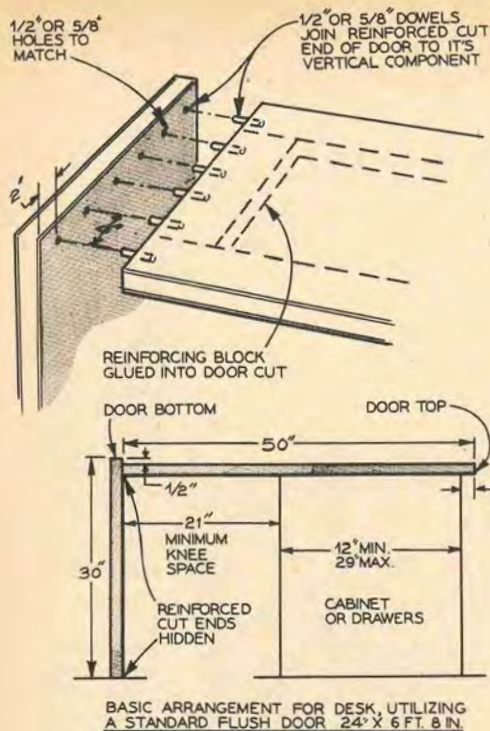
MOUNTING HOLES

1/2" SIDE AND
REAR PANELS



72 TYPICAL DRAWER
CHEST ASSEMBLY

BOTTOM SET
INTO RABBETS

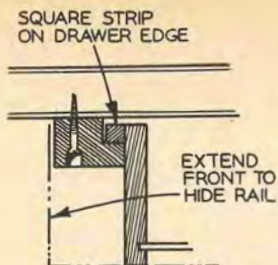


BASIC ARRANGEMENT FOR DESK, UTILIZING A STANDARD FLUSH DOOR 24" X 6 FT. 8 IN.

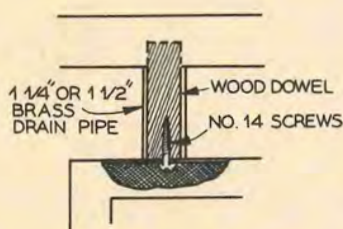
mum; the typewriter drawer can be built wider, for instance, to match other wide drawers below it. This drawer slides on its flat $\frac{3}{4}$ -in. bottom. For smooth movement, place thumbtacks in the drawer-chest slides underneath.

SLIDING DOORS: For a chest with sliding doors below the desk, construction is the same except that a solid middle shelf is used. Use your dado blade on the table saw to cut the door grooves in the top, middle and bottom shelves. Note that the upper grooves are cut twice as deep—this allows you to remove and replace the doors at will, after the chest is assembled, by simply pushing the doors up into the top grooves to clear the bottom grooves. Doors of $\frac{1}{8}$ -, $\frac{3}{16}$ - or $\frac{1}{4}$ -in. hardboard can be used, or of $\frac{1}{4}$ -in. plywood. The punched (perforated) hardboards or textured plywoods are especially attractive here. The sides of the chest can be left untouched, for a butt fit, or grooved $\frac{1}{8}$ in. to receive the doors.

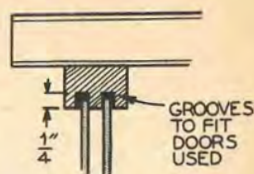
SINGLE DRAWER: A single drawer simply hangs from the desk top in wood slides, as shown. Best to make the slides of hardwood, for strength and for smooth movement. The drawer front can be made wide enough to cover the slides. Use screws and glue to secure them beneath the desk's top.



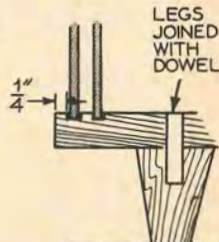
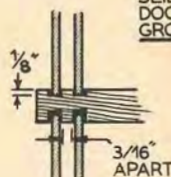
HANGING A SINGLE DRAWER



FILING CABINET POSTS



SLIDING DOOR GROOVES



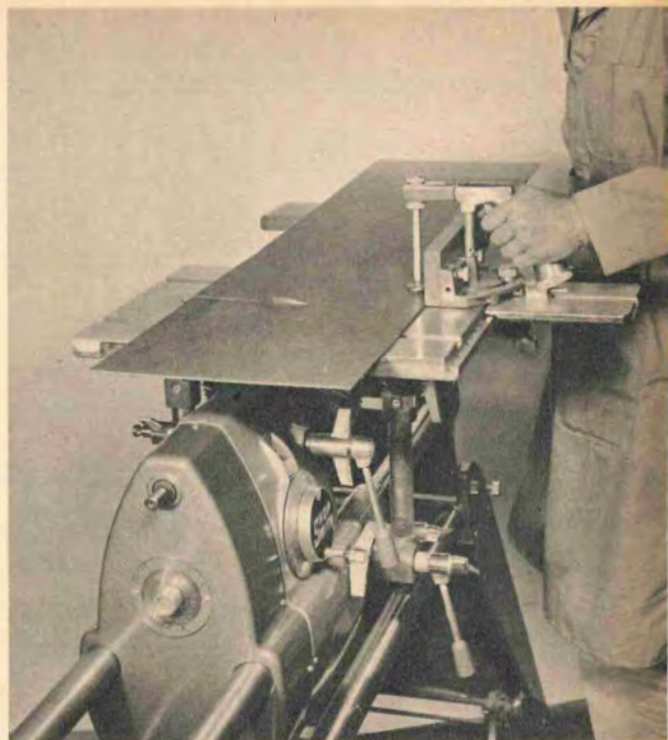
LIBRARY TABLE: The library table version is simply two doors cut and assembled as in the basic construction. When doweling the shelf to the ends, you will find that the two middle dowels on each end of the shelf will enter the hollow-cored area of the desk ends. These should not be left out, because they go a long way toward preventing any downward give in the shelf of your desk.

FILING CABINET: The basic desk can easily be fitted to any standard two-drawer set of metal filing drawers—or to any other type of ready-made chest, for that matter. This is done by simply adding short posts at the top to bring the filing drawers to the required height, rather than by building a difficult base for them. The method also provides a handy shelf for a dictionary or telephone book. As shown, the posts are wood dowels, glued into dowel holes in the desk top, covered by $1\frac{1}{4}$ - or $1\frac{1}{2}$ -in. brass, chromed or burnished aluminum tubing that is glued to the dowel. Or you can use hardwood dowels alone, finished natural. The short lengths of brass or chromed tubing can very often be obtained for a pittance from plumbing shops. To the plumbers themselves, they are mere scrap lengths that will more than likely be thrown away. •



“ERECTOR SET” STORAGE CABINETS

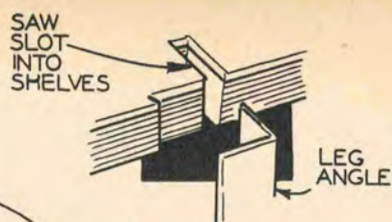
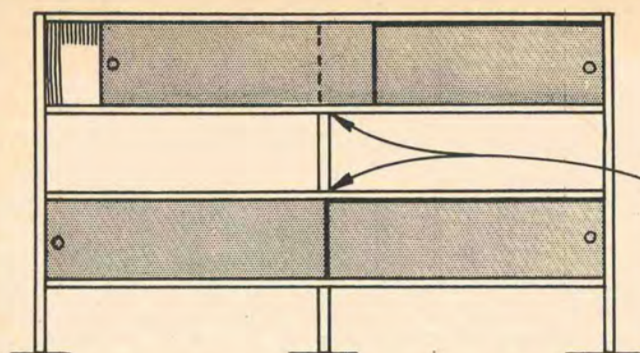
Use them for toys, tools, books or anything. They require no paint and are easily produced in quantity in the size your needs dictate.



An 11 $\frac{1}{8}$ " strip from standard 4 ft. wide hard-board provides both shelf and end of cabinet.

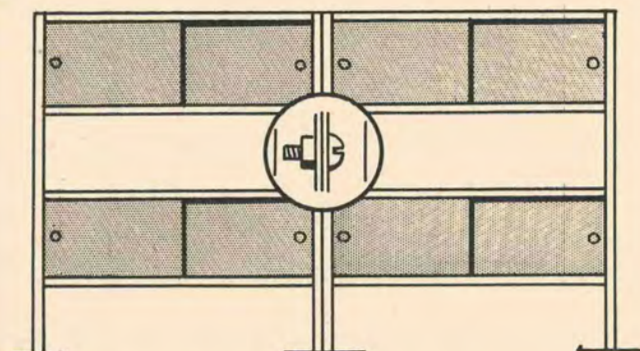
IF you like the mechanical approach to modern furniture—or like to tinker with Erector sets—these storage cabinets are for you. They are simple to produce on your power tool, and in any quantity. Lightweight, strong, they are very inexpensive. You can build them of most any size and shape you desire, and they go together as rapidly as the Erector sets which are so popular with adults and children alike. They don't have to be painted or varnished—use a wax stain and wax finish.

The model shown at left is recommended for the children's room, a handy size for storing their toys and treasures. For the utility room, rumpus room, laundry, workshop, etc., you may vary the width and height, even the depth. If the cabinets are to be used for tool storage or the like, it isn't a bad idea to use a perforated hard-board for the compartment backs; it will allow you to hang tools inside on hooks available for that purpose. And more hanging space is made available by building the back of one large piece of perforated hard-

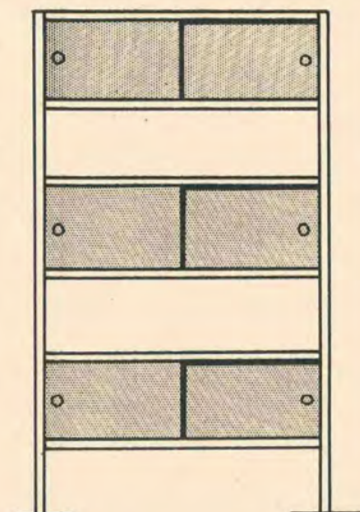


DOORS AND TRACKS COVER MIDDLE LEG WHICH IS CUT INTO 1" X 2" FRAMERS

SINGLE CABINET CAN BE 6 FT. LONG BY ADDING MIDDLE LEGS FOR SPAN SUPPORT



TWO OR MORE CABINETS JOINED BY BOLTS



CABINETS CAN BE 3 TIERED

Here is an economy tip:—on the rear legs of your cabinets, use only short lengths of aluminum angle to cut down on total amount needed.

Run door tracks with single blade dado set for 3/16" or saw blade as shown. Run for blade-width groove. Move blade, rerun for 3/16" cut.

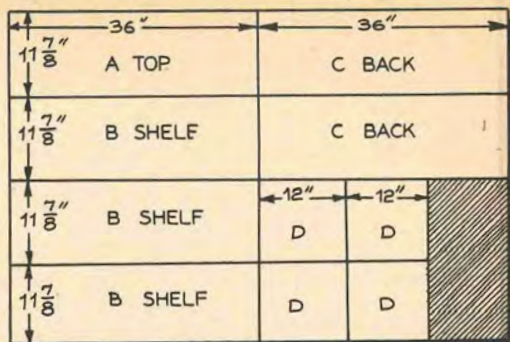


board, to have it extend up the rear of the open shelf between compartments.

To construct, first build the shelves that form the top and bottom of each compartment. In the model, an $11\frac{7}{8}$ -in. strip cut from a standard 4-ft. wide panel of hardboard gives one shelf and also an end. Cut the frames for each shelf from any 1 x 2 softwood on hand—clear stock is not needed. The frames are assembled with one corrugated fastener at each corner, simply to keep them together until glued. Apply any good glue very liberally to the frames and then place the screened side of the hardboard on the glue. Stack all glued shelves together, hardboard panels face to face. Place a board underneath and on top, then clamp or weight. You do need to press these together firmly. A C-clamp at each corner and the middle of long sides will do the job. Or place one end of your multipurpose tool plus other heavy objects on the stack on the floor.

Cut the hardboard backs to dimensions given in the example. The legs can be formed of three 6-ft. lengths of the aluminum angle, instead of four. Cut two 40-in. lengths for the front legs. This leaves two 32-in. lengths for the back, which will extend down to the bottom of the lower cabinet. Two 15-in. pieces cut from a third length complete the rear legs.

You now assemble the cabinet. Drill holes through the aluminum and hardboard to attach the top shelf, then work down, attaching one shelf at a time. The only trick here is to stagger the pair of holes in each corner so that two screws will not meet in the 1 x 2 frames. Note that $1\frac{1}{4}$ -in. sheet

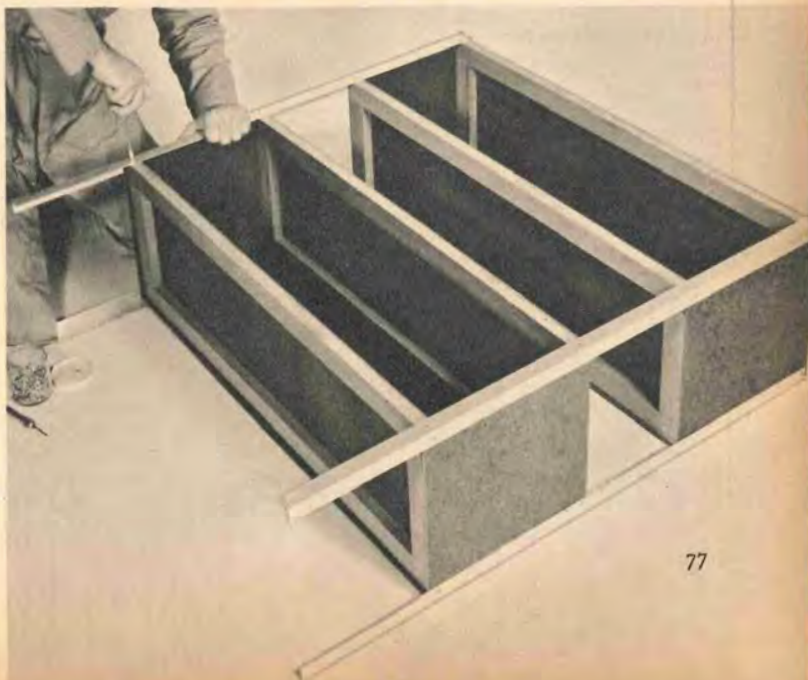


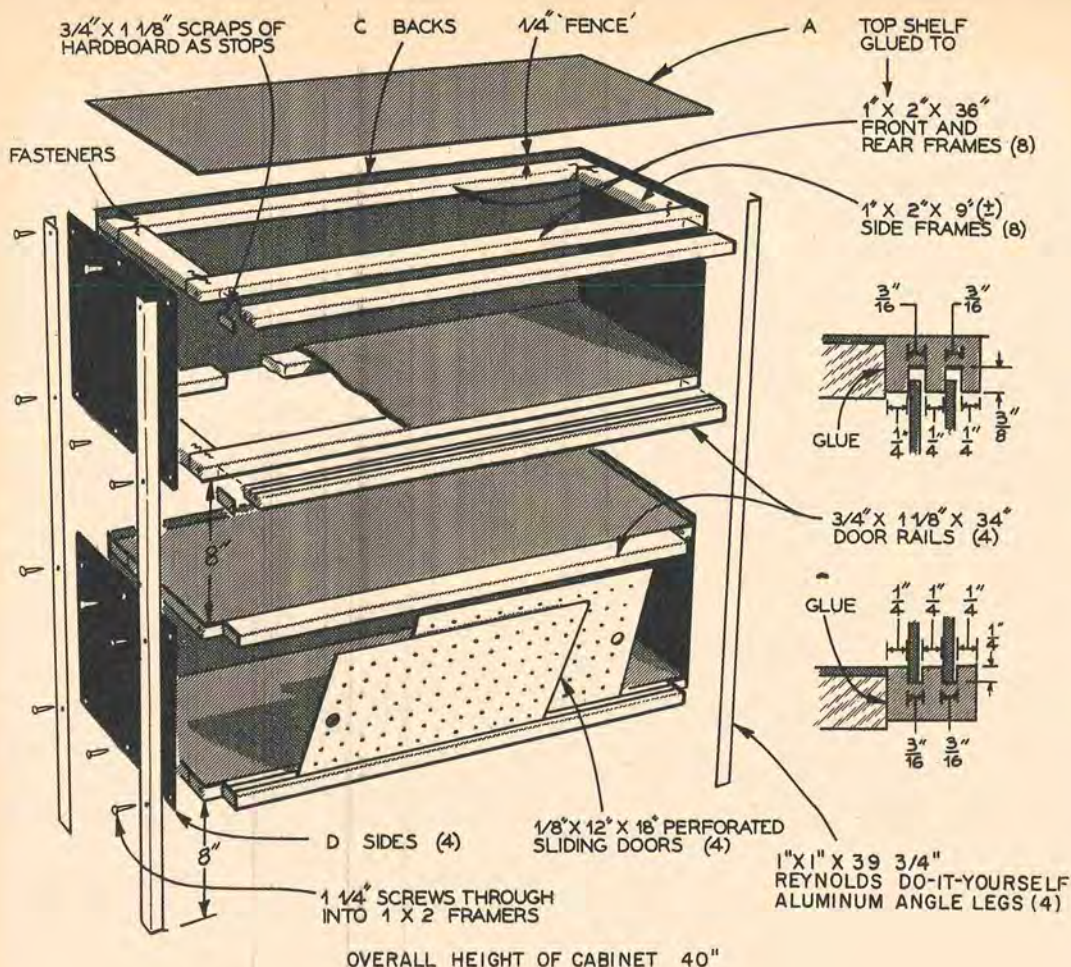
$1/8$ " X 4 FT X 6 FT. TEMPERED HARDBOARD GIVES ALL BUT TWO SETS OF DOORS FROM ONE SHEET

MATERIALS USED IN EXAMPLE

- 6 pcs.— $1/8$ " x $11\frac{7}{8}$ " x $35\frac{3}{4}$ " Allwood—4 shelves & 2 backs
- 4 pcs.— $1/8$ " x $11\frac{7}{8}$ " x 12" Allwood—4 sides (all of above cut from one 4' x 6' panel)
- 4 pcs.— $1/8$ " x $10\frac{9}{16}$ " x 18" Shobord—sliding doors
- 8 pcs.— $3/4$ " x $1\frac{3}{4}$ " x $35\frac{3}{4}$ " fir—shelf frames
- 8 pcs.— $3/4$ " x $1\frac{3}{4}$ " x $8\frac{3}{4}$ " fir—shelf frames
- 4 pcs.— $3/4$ " x $1\frac{1}{2}$ " x 34" redwood—door tracks
- 3 ea.—6 ft. lengths 1" x 1" x $1/16$ " Reynolds Do-It-Yourself aluminum angle
- 3 dz.— $1/4$ " No. 6 pan head sheet metal screws (cadmium plated)
- 2 dz.—1" No. 6 pan head sheet metal screws (cadmium plated)
- 4 ea.— $3/16$ " x $3/8$ " r.h. bolts—rear legs
- Glue and 6d finish nails

Assemble your cabinets with sheet metal screws as shown at the right. No lead holes are drilled for screws in end grain of 1x2s.





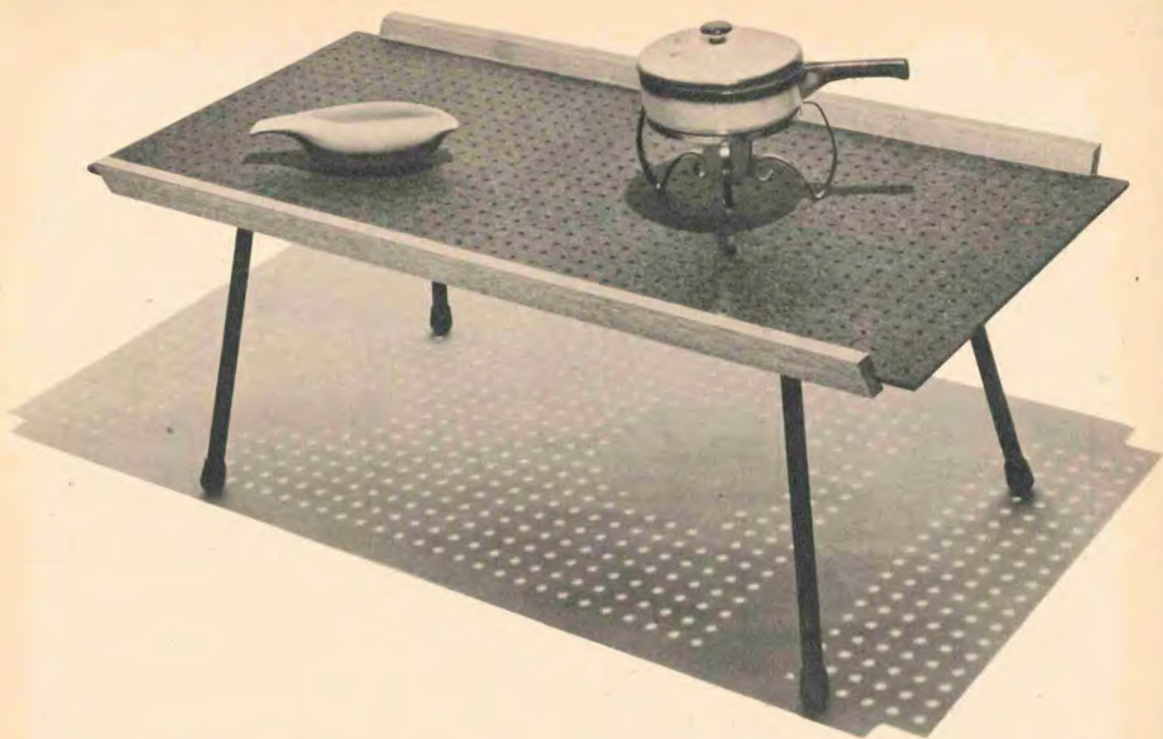
metal screws are used—they will hold better than wood screws in the softwood. One 1-in. sheet metal screw is placed in the middle of the end of each shelf, as shown, and three of the same across the back of each shelf. The short 15-in. rear legs are secured at their upper ends by small bolts through the other aluminum and the hardboard.

The door tracks are attached after the cabinet is assembled—by glue and five or six 6d finish nails in each. Place these tracks flush with the top of the hardboard of each shelf. Wipe off any excess glue here before it dries. The small aluminum or hardboard door stops are attached, after the doors, by one 1 1/4-in. sheet metal screw each.

Sliding doors of 1/8-in. perforated hardboard are cut to fit inside the tracks. When

trimming these to size on your table saw, watch to keep the perforations the same height from the bottom of each piece. Choose one of the perforations near the outer end of each door for centering a 1-in. hole for a finger pull. Drill these on the vertical drill press of your multi-purpose tool, so that the holes will be smooth.

The example was finished overall by two coats of clear liquid wax, the sliding doors first given two coats of Cabot's white wax stain. If desired, you can lighten the hardboard overall with wax stain, and in a variety of colors. In a child's room, the shelves, sides and backs can each be enameled in different bright colors. The wax stains, though not strong colors, are of advantage here as they are quick and easy to apply to hardboard and will simply rub off the aluminum legs with a rag. •



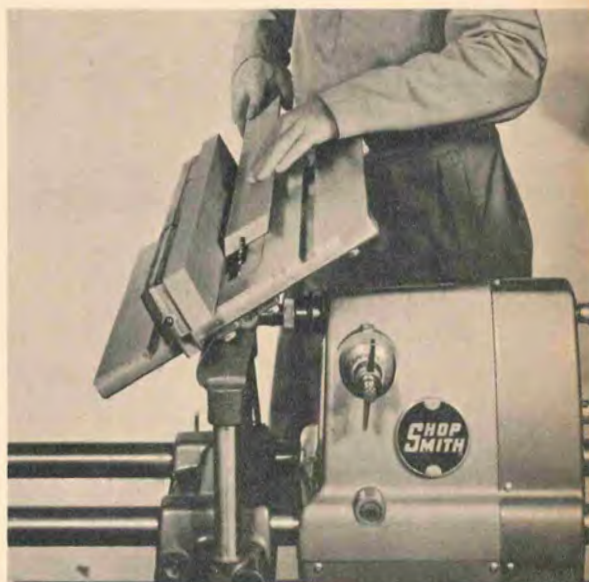
LOUNGE TABLE

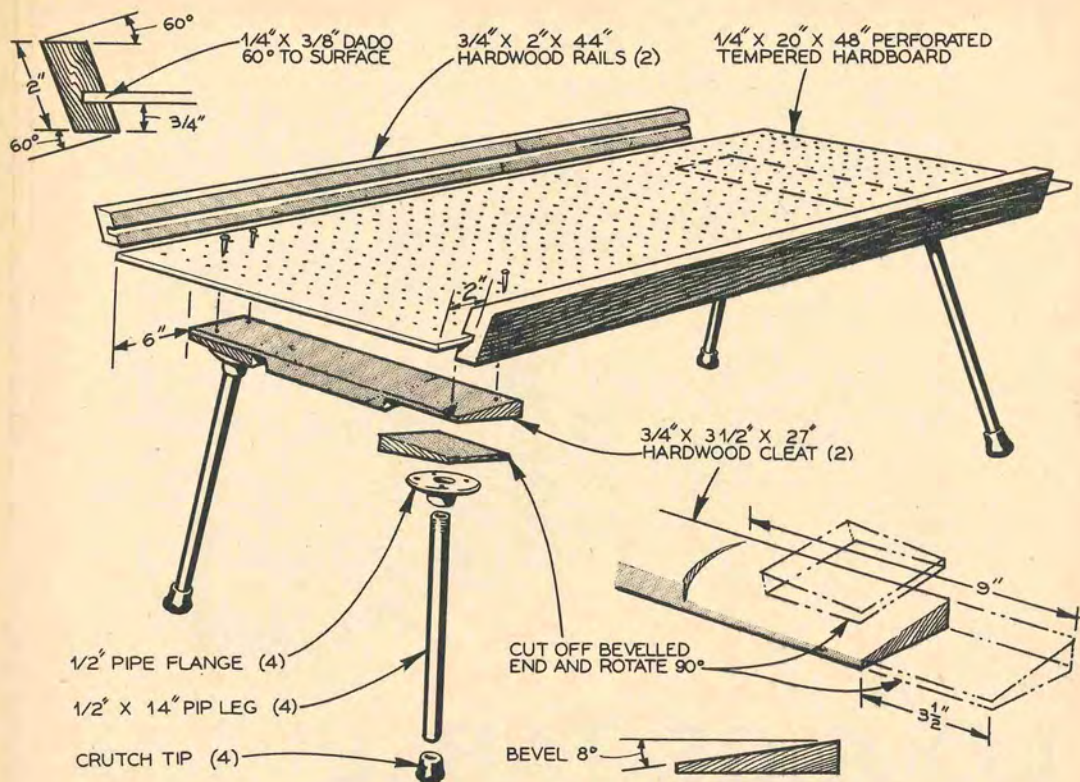
... by prominent furniture designer Harry Weitzer is as light as air yet you can stand on it! Perforated top and flared legs give it a modern look.

THIS modern lounge or coffee table is a good example of today's simplicity in furniture design. Airy in appearance, the table is light in weight, easy to move about the room. Yet you can stand on it! The unique way its pipe legs are all flared out may give you an idea to use on other projects. By using galvanized pipe and doing a good job of sealing the wood and hardboard, the table becomes outdoor furniture, too.

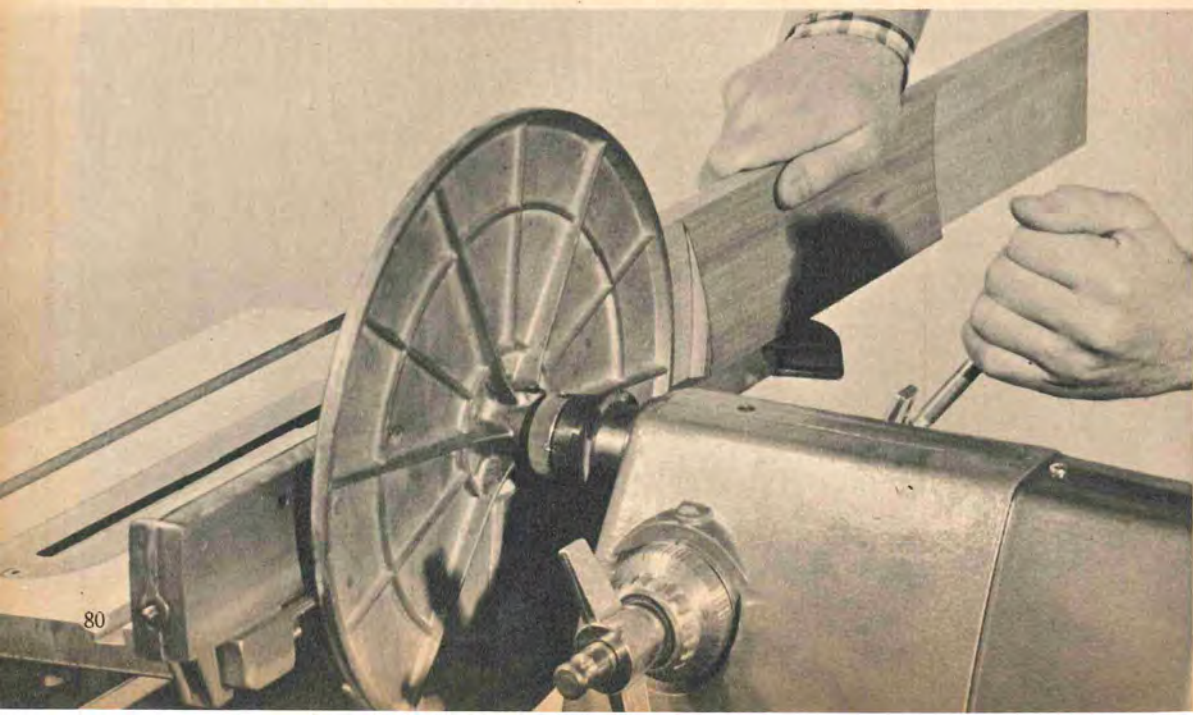
Finish can be natural, or the hardboard lightened by one or two coats of white resin sealer, wiped off before dry, giving a cork tone to the material. Enamel or lacquer will be glass-smooth on hardboard, and the top finished thus can add a splash of color to the room. Best to enamel or lacquer before assembly and to use a non-penetrating sealer to eliminate the need of sev-

Dado sides on table saw: 30-degree tilt. Block keeps beveled edge from catching on rip fence.





Below. Leg supports are beveled rapidly and accurately on this setup with the disc sander of your multi-purpose power tool. Its quill feed dial stop will prevent the disc from touching the table.



eral undercoats. Legs are lacquered or enameled dull-black.

First, size the perforated hardboard to approximately 20-in. width on the table saw, adjusting the width of your piece, if necessary, to leave enough solid material on each side so that none of the punched holes will be part way in the grooves of the hardwood trim. Next, run the two 44-in. hardwood sides, setting your saw table at 30 degrees to cut their beveled edges and to cut the $\frac{1}{4}$ -in. grooves with the dado blade. While at this, also cut a few scraps of wood at the 30-degree angle—to square up under furniture clamps or twisted ropes when gluing. Glue alone is used to secure the sides to the perforated hardboard.

The trick of this construction is in beveling the leg supports evenly, which can be done on the jointer though difficult there because of the thin work. You can do a perfect job with the 12-in. disc sander of your multi-purpose tool. Set the saw table at 8 degrees and as far down as it will go. Place the rip fence about $\frac{1}{4}$ in. from the edge of the table, as shown. Position the table an inch or so from the sanding disc and use the quill feed stop dial to prevent the disc from touching the table. With a coarse paper on the disc and about "E" speed on the Speed-Dial, feed the disc to the work with the quill feed and, while cutting, slide the work an

inch or so back and forth along the rip fence for the smoothest cut. The bevel on the opposite end of the support needs to be cut on the rear side of the table. On this setup, there is no difficulty—feed and cut the same, simply holding the work down to prevent its sliding up on the fence.

From the beveled ends, $3\frac{1}{2}$ -in. lengths are cut off on the table saw. Turned sideways, glued and nailed to the supports, these blocks give the flare or diagonal slant to the legs—and all four legs will be uniform. The assembled supports are glued to the underside of the perforated top; simply use something heavy to push them flat until the glue dries. The pipe legs are tightened into the pipe flanges before attaching to the table. The rubber crutch tips are obtained in dime stores. •

MATERIALS USED IN EXAMPLE

- 1 pc.— $\frac{1}{4}$ " x 20" x 48" Shobord—top
- 2 pcs.— $\frac{3}{4}$ " x $2\frac{1}{2}$ " x 44" mahogany—sides
- 2 pcs.— $\frac{3}{4}$ " x $3\frac{1}{2}$ " x 27" pine—leg supports
- 4 ea.— $\frac{1}{2}$ " lengths $\frac{1}{2}$ " dia. black pipe, threaded one end
- 4 ea.— $\frac{1}{2}$ " pipe floor flanges
- 16 ea.—1" No. 10 f.h. wood screws
- 4 ea.— $\frac{3}{4}$ " rubber crutch tips

Screw table's legs tightly into their flanges first; then affix flanges securely to the blocks beneath your table as shown at the right.

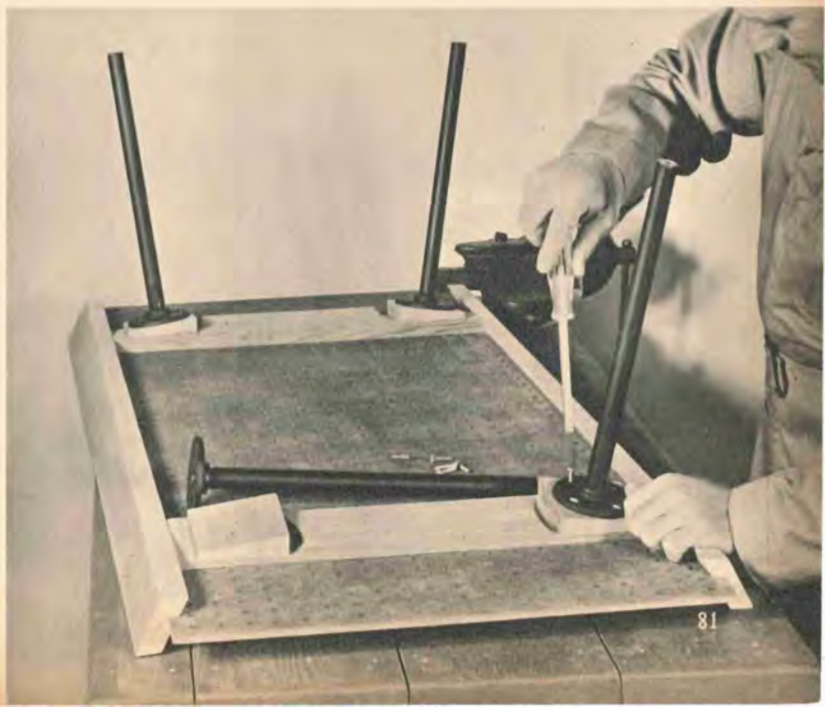




TABLE FOR YOUR TV SET

It's merely a box on legs—"duck soup" for you and your multi-purpose tool—but try to find a TV table as slick and solid.

TELEVISION sets—even the smallest table models—are surprisingly heavy items. Here is a modern stand for your table model that will never wobble or give. Sturdy is its name.

The stand is very simple to construct on your multi-purpose tool. Basically, it is an open-end box with holes for four legs. The bottom side of the box gives a solid brace to support the legs. Actually, the legs do not even need gluing.

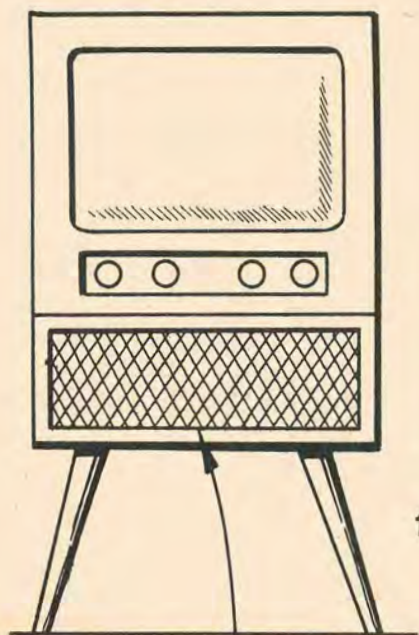
Any $\frac{3}{4}$ -in. hardwood plywood can be used for the box. Usually, it is best to choose a contrasting hardwood to that of your set's cabinet—say, walnut against limed oak or light birch against mahogany—because it is almost impossible to match a cabinet's finish exactly, especially after the cabinet's finish has been bleached a bit by time. Measure the bottom of your TV cabinet and cut the top and bottom of the box to the same size or, if anything, $\frac{1}{4}$ in. less in width and depth. Next, cut the two side pieces and rabbet them, as shown, using either your dado blade or two passes on a planer blade. This simple joint will show on the top of the stand, but does not

matter since your TV set will cover it.

Before assembling the box, drill the $1\frac{1}{2}$ -in. holes in the bottom piece for the legs and the $\frac{1}{2}$ -in. holes in the top for the legs' stub dowels. Draw diagonal lines from corner to corner on the underside of both pieces and position the holes on those lines to dimensions given. As shown, the holes are drilled with the vertical drill press and with its table set at a 15 degree angle. The $\frac{1}{2}$ -in. hole in the top piece is blind—does not go completely through. With the holes drilled, the box can be assembled, using glue and nails from top and bottom.

Legs are turned on the lathe from $1\frac{5}{8}$ -in. hardwood. Use your eccentric tailstock, set at $\frac{3}{8}$ in. offset, to give the taper needed. Start the tapering $7\frac{3}{8}$ in. from the top of the legs—the rest is a straight $1\frac{1}{2}$ -in. cylinder to fit the holes in the box. Drill a $\frac{1}{2}$ -in. hole in the upper end of each leg for a short length of $\frac{1}{2}$ -in. doweling. On the table saw, cut both ends of each leg to a 15 degree angle. Try the legs in the box before applying glue, to be certain the stub dowels are not too long.

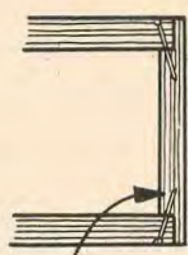
Last, three methods are shown for finish-



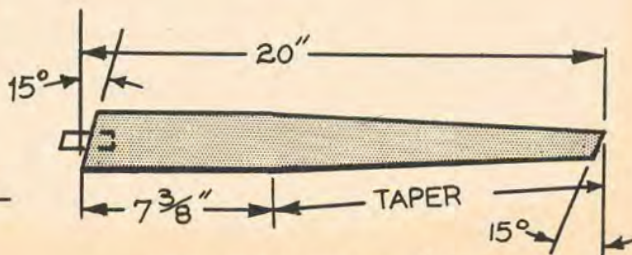
TO SIMULATE CONSOLE
STYLE PLACE CLOTH
GRILLE OVER TABLE OPENING



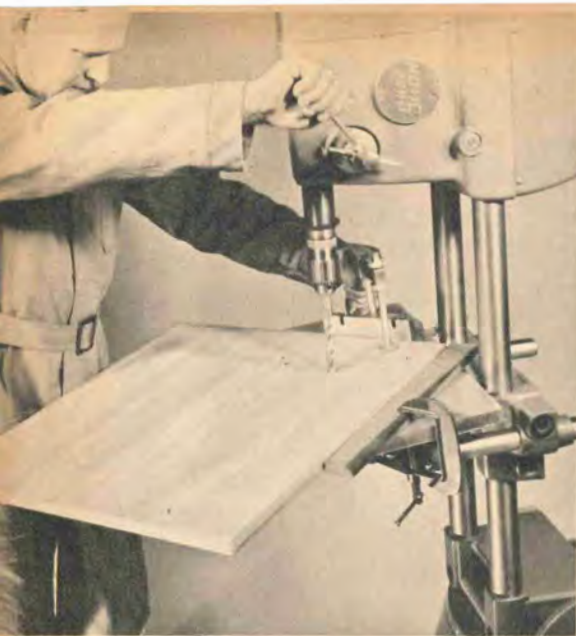
FRAME GRILLE
CLOTH WITH
RABBETED STRIPS



ASSEMBLE
WITH NAILS
AND GLUE



LEG TURNED FROM 2" STOCK



When drilling leg holes, tool is set as vertical drill press with table at an angle of 15 degrees.

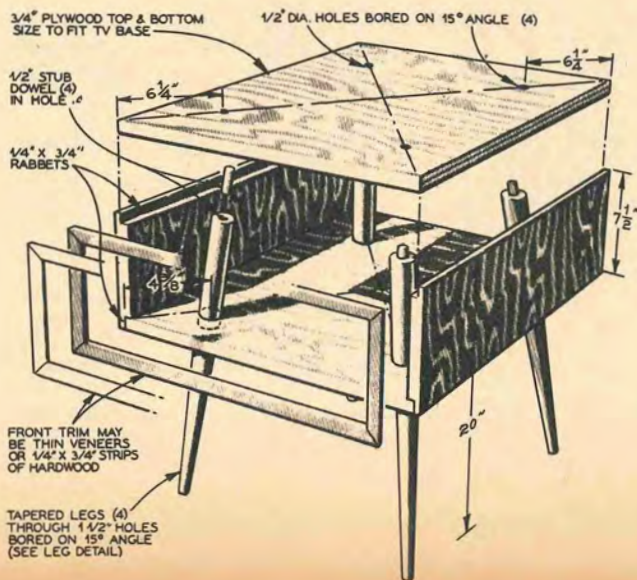


Thin hardwood strips for finishing the plywood edges may be easily ripped with the planer blade.

ing the front edges of the box. One is to nail and glue $\frac{1}{4} \times \frac{3}{4}$ -in. strips of hardwood trim—a careful job is needed here to hide the countersunk nail holes with a toned putty or filler. The second method is to utilize the quill feed of your multi-purpose table saw to slice off thin strips from a $\frac{3}{4}$ -in. piece of hardwood. Glue these veneer strips to the edges, using weights or masking tape to hold while drying. The third method is to obtain the new “Woodtape,” similar hardwood strips which are available in the various woods of plywood. You simply peel off a paper strip on the back side, exposing a layer of the new contact glue which needs only pressing on with the fingers to adhere instantly. With all three methods, miter the corners. To accurately

miter the thin veneer strips, use your 12-in. sanding disc and the miter gauge of the saw table, supporting the veneer between two scraps of plywood.

There is another good finish for the front of the box, one which will completely change the appearance of the TV stand. Simply obtain a piece of loudspeaker cloth, 8 in. wide, at a radio supply store and tack it to the front of the box. Cover the edges with a rabbeted hardwood trim, as shown, and your stand will appear to be the loudspeaker section of a console TV set. If you are not quite certain whether you would rather have this than the use of the shelf in the stand, finish the rear side by one of the three methods above. The stand can then be reversed for use either way. •





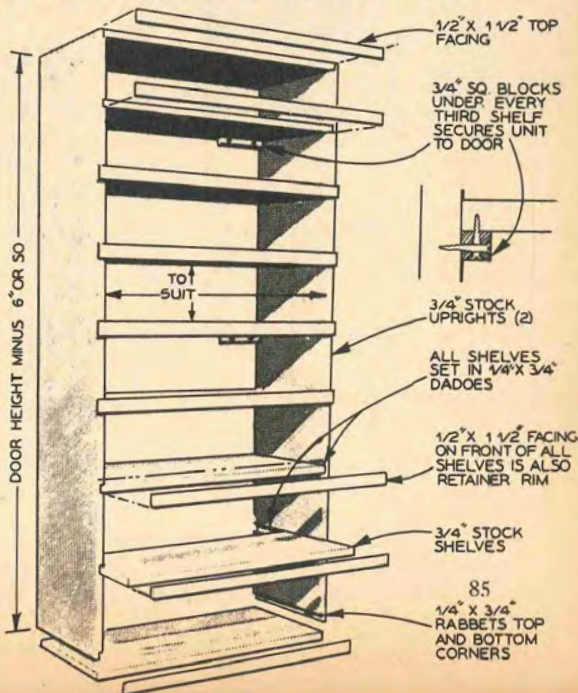
DOOR SHELVES FOR YOUR CLOSETS

... will double your storage space, eliminate that dusty jumble of shoes on the floor, and simplify the cleaning chores of friend wife.

NEEED more closet space? Here is a modern touch that can double the capacity of your bedroom and other closets. Best of all, these door shelves require no tearing up of present wood and plaster.

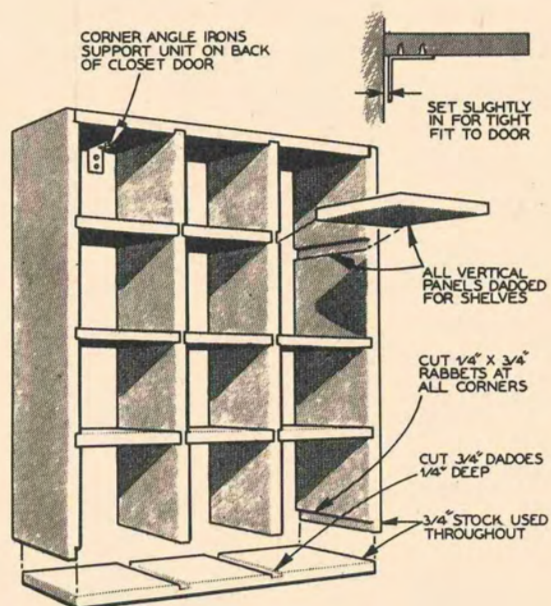
The door shelves can be completely assembled and painted in your workshop. Dimensions will be determined by your own particular closets, and the depth of the shelves will depend on the walk-in space available inside the closet doors. Depth-wise, $4\frac{1}{2}$ in. is about the shallowest shelf practical for handkerchiefs, socks and the like. A depth of 14 in. is about the useful maximum. The shelves can be of bookshelf or true eggcrate type.

There are certain tricks to good door-hung shelves. First, you will probably find that your closet doors have only two hinges. For additional support, add a third hinge to the door being used, halfway between the two original hinges. Do the same with any smaller cabinet door to which shelves are to be attached, obtaining a third cabinet





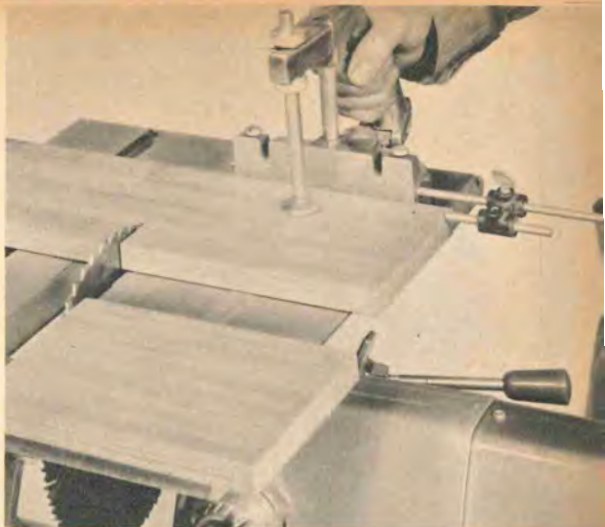
Example of eggcrate construction on cabinet doors is shown above. Be sure that added hinge is like original pair.



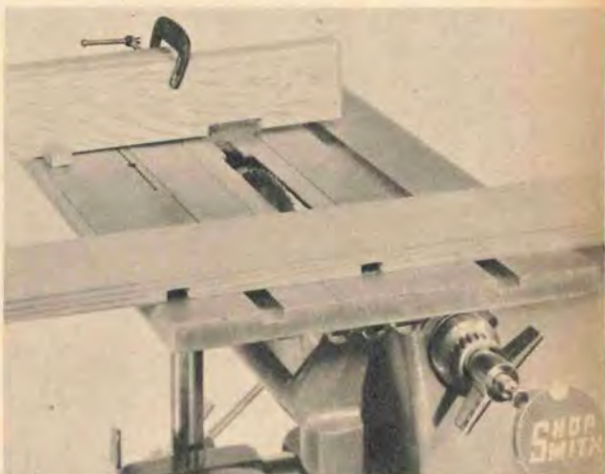
hinge of the same type as the originals to be sure of the same "swing." Build your shelves of a size that leaves at least $1\frac{1}{2}$ in. clearance at the sides of the door and 6 in. at top and bottom. Best to forget about adjustable shelves, which will jiggle loose on a swinging door, and use the solid shelf construction shown.

Any $\frac{3}{4}$ -in. softwood or plywood is satisfactory for shelf construction. First, lay all vertical pieces together and mark the dado cuts needed on all at the same time for uniformity. With a dado blade in the table saw, cut grooves, $\frac{3}{4}$ in. wide and $\frac{1}{4}$ in. deep, in these vertical pieces. Especially on eggcrate shelving—where there are so many cuts to make—a jig as shown in the photo is fast and gives more perfect spacing. For this jig, simply make the dado cut on a scrap board, nail a short stub of $\frac{1}{4} \times \frac{3}{4}$ in. wood in the cut and clamp the board to your miter gauge. Placing the last dado cut over the stub positions the board for the next cut. On the eggcrate construction, note that there are also dado cuts to make on the horizontal pieces, bottom and top. A miter gauge stop rod is of definite help in cutting the short horizontal pieces to the same length. A small block of wood clamped to the rip fence is equally helpful for long shelves.

Use both glue and nails when assembling the parts. To hang the bookcase type shelving to a door, glue and nail $\frac{3}{4} \times 1\frac{1}{2}$ in. wood strips, as shown, to the bottom of every other shelf and secure to the door with wood screws through these strips. To hang the eggcrate type, use eight small metal angle brackets, one at each corner and one at the middle of each outside board. A good trick here is to screw the brackets first to the shelving, $\frac{1}{16}$ in. forward of the board's rear edge. Thus, screwing the brackets to the door will pull the shelving tight against it. With the brackets, use sheet metal screws on a flush door for maximum strength in the thin door panel. •

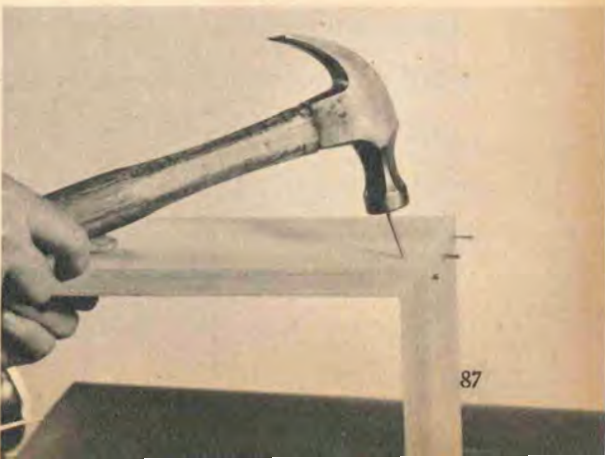


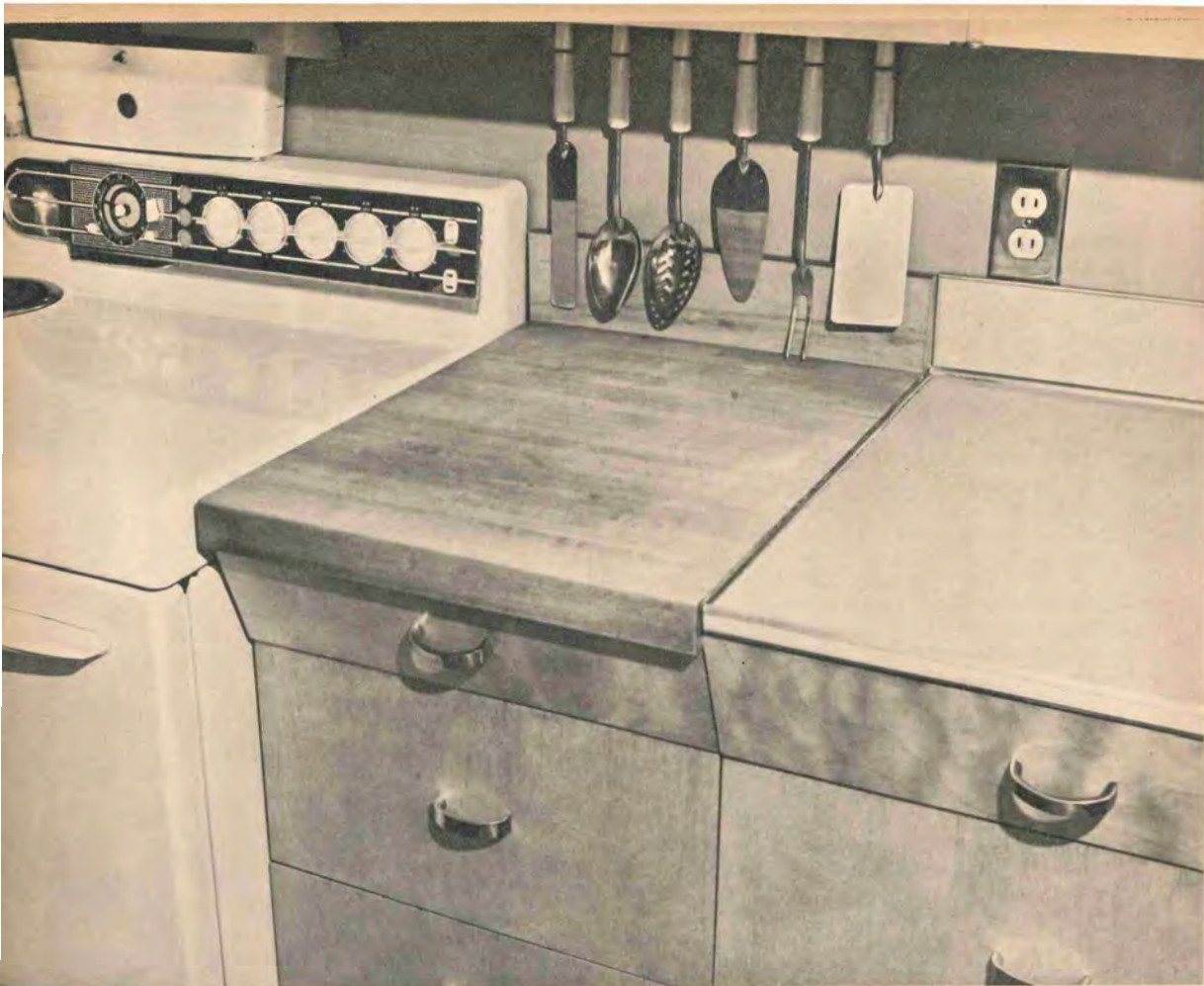
Construction of the shelves is extremely simple if you cut all pieces to the exact same length.



The simple jig shown above enables you to make equal spacing of the dado cuts a production job.

Right. At shelving's four corners, glue and nails from both directions will prevent any loosening.





COUNTERTOP CHOPPING BLOCKS FOR MODERN KITCHENS

The old chopping block has slimmed down, had a face-lifting and found a new stage. But it plays the same rugged, serviceable role.

THE chopping block, traditional with the butcher shop, is proving itself a boon in modern kitchens. And not just for meat! A counter-height block is solid, convenient, and ever ready for use. It is excellent for tossing salads, rolling pastries, thawing foods, cutting, chopping or carving anything.

Under normal home usage, a maple chopping block is almost indestructible. The chopping block shown in the photo

had had four years use when the photo was taken—and it had not once been scraped! The finish is simply a first coat of cooking oil rubbed on with the hand and similar oils gathered from daily use.

With the horizontal drill press of the multi-purpose tool, construction of the chopping block is very simple. An equally simple way to inset the block in any wood kitchen base cabinet is given herein. Metal base cabinets vary, but most are con-

structed similarly, using metal angle brackets. You can reduce the thickness of the chopping block to about 1½ in. and just screw it to the top of a metal base cabinet from underneath. An aluminum edge trim on the sides will even out the joint.

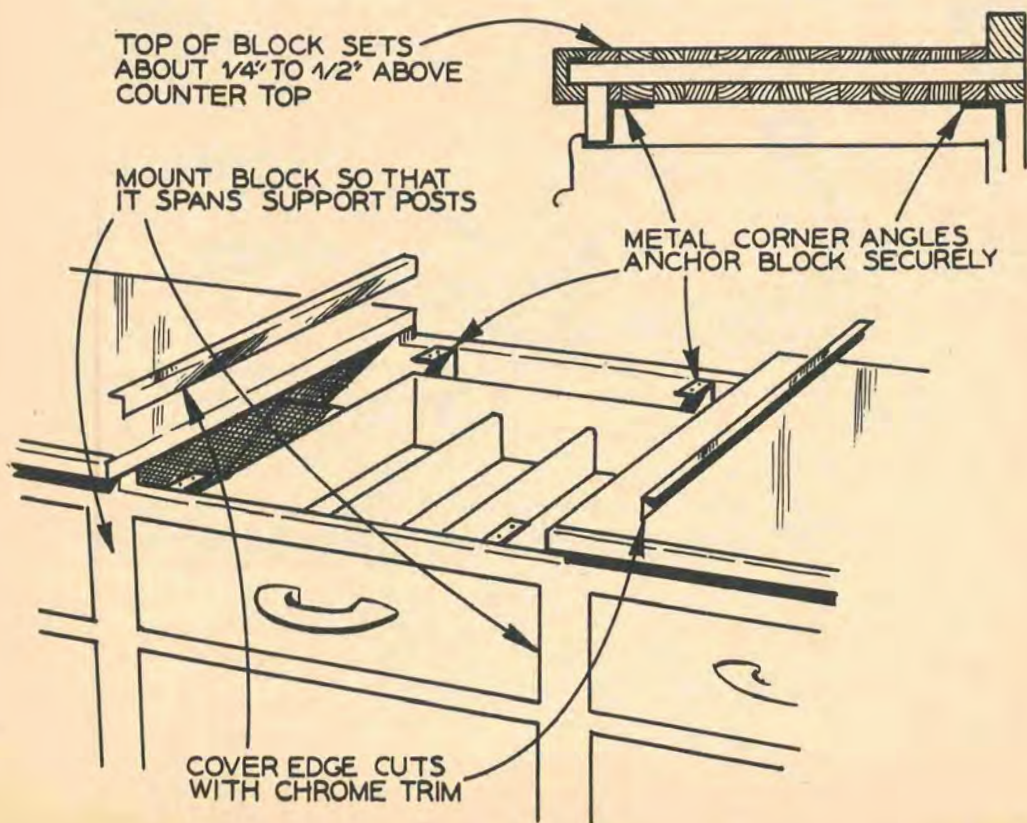
The two most convenient locations for your chopping block are near range or refrigerator. Decide where your chopping block will go and its size. For appearance, it is usually best to center the block over a drawer or partition of the cabinet below, or at the middle or end of a base cabinet.

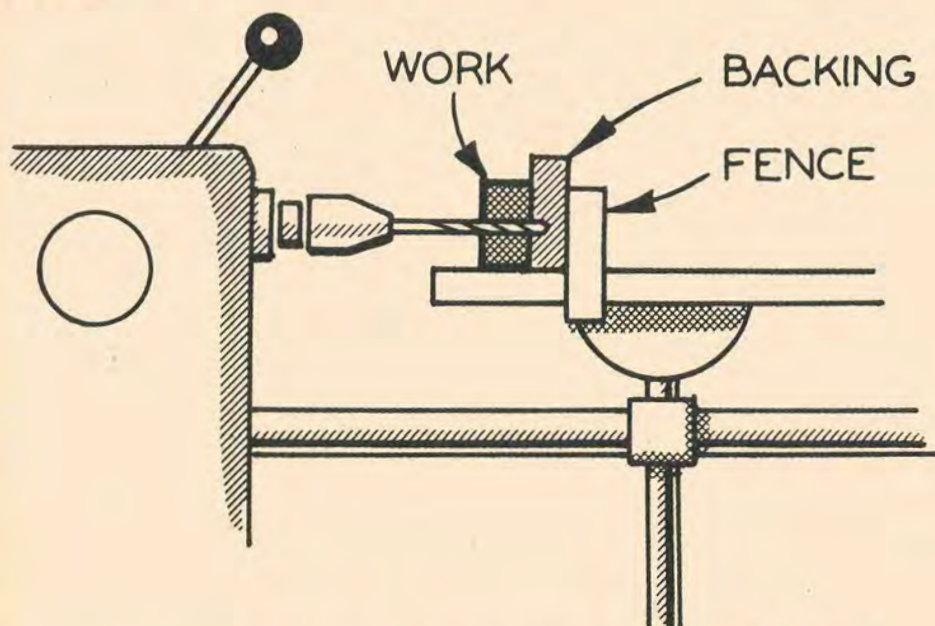
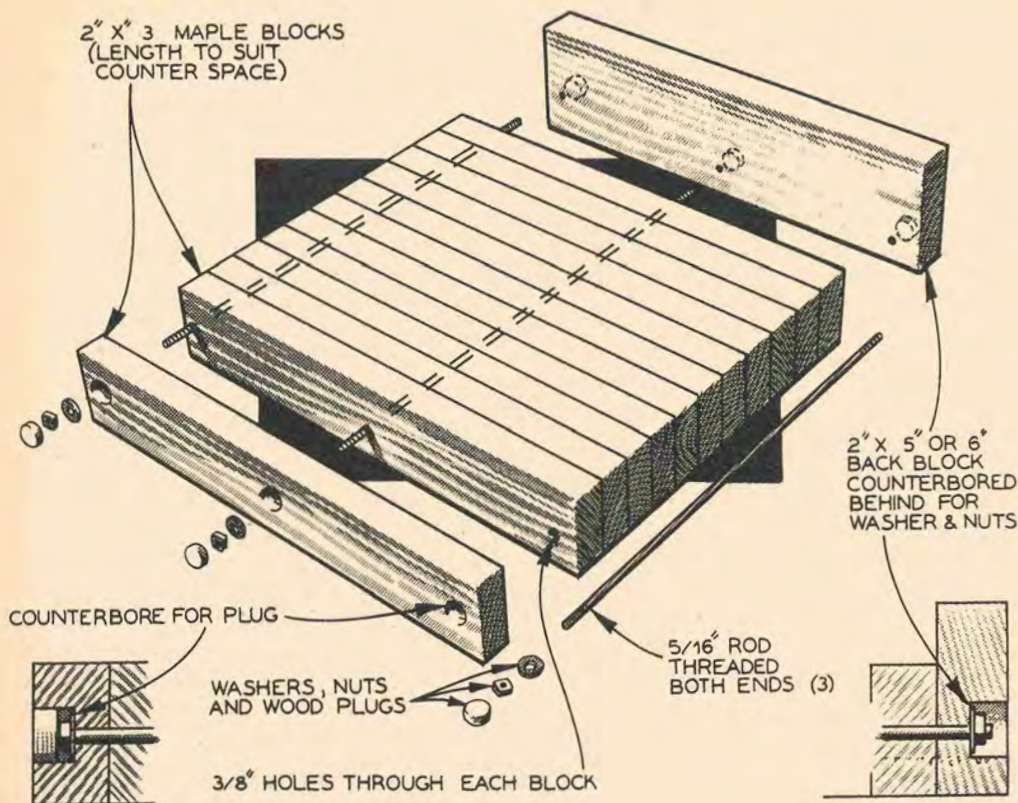
The best wood to use is maple, though with bolted construction, any truly hard hardwood can be used. Be sure your wood is dry. The pieces can be 2 x 3s, 1 x 3s or the like, but note that you need thick pieces at the front and back for inseting the bolts. A 2 x 5 or 2 x 6 piece at the back provides a built-in splashboard.

First check all pieces for straightness and, especially, for flat sides. If necessary, size them on the jointer. Next, cut all pieces to the same length on the table saw,

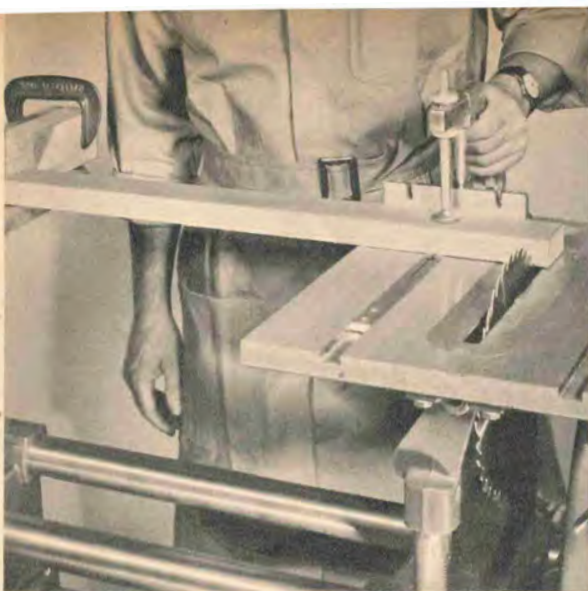
using a scrap block, as shown, on the rip fence on the extension table as a gauge. With the multi-purpose tool as a horizontal drill press, drill three 1-in. holes through the front and back pieces for the bolt insets; then drill ¾-in. holes through all pieces. As shown, the miter gauge, locked in its slot, will serve as an end block to give evenly-spaced holes—most important of all.

Use three lengths of ⅝-in. iron rod (obtainable at welding shops) for the bolts. Thread both ends and make these rods short enough to leave space for the dowel plugs on the front piece. With Weldwood or a similar heat-and-water resistant glue, paint both sides of each piece lightly. A thick layer of glue is wasted; most will be squeezed out. Insert the rods and use either furniture clamps or the horizontal drill press as an extra clamp to help when tightening the bolts. Before the final tightening, check the top of the block with a straightedge for levelness and pound any misaligned piece into place. Finally, glue three short lengths of 1-in. dowel into the





**CONVENIENT HORIZONTAL BORING
ALIGNS ALL HOLES WITH PRECISION**



Work should be free of wood block clamped to rip fence on extension table before it touches saw.



Jointer is your assurance of flat sides for gluing. For safety, use sanding block or wooden hold-down.

holes of the front piece. Don't plug the holes of the rear piece.

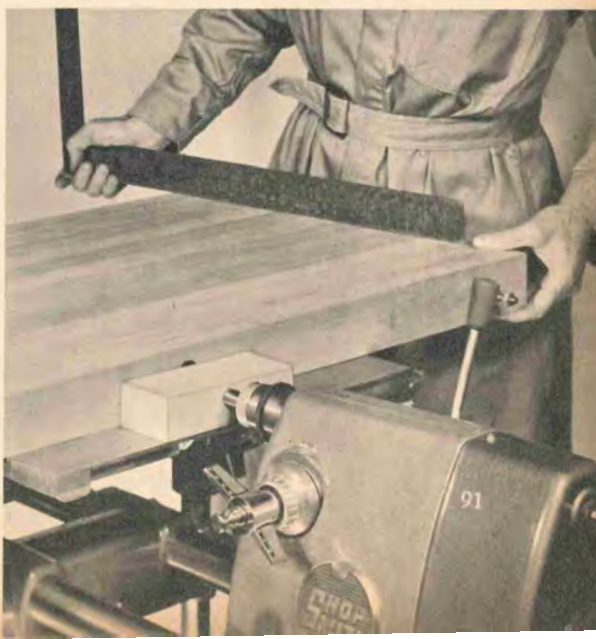
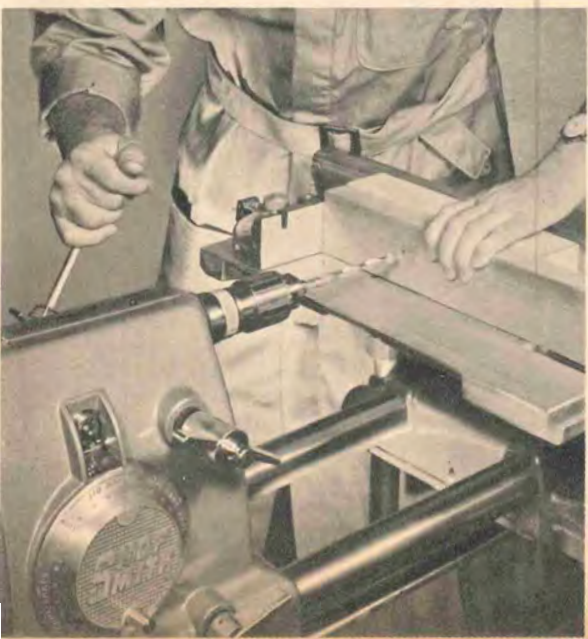
Sand only to finish—a plane will play havoc with the crossgrains of the block. The 12-in. disc sander does a good job of sanding the top, the ends and the dowel plugs. If you should find any joint still open when sanding, loosen the bolts at the rear, work glue into the joint and retighten.

Details of fitting the block into the base cabinet are shown in the diagrams. Four small metal brackets (obtainable at any

dime store) are ample to secure the block, as its weight prevents movement. If need be, you can cut quite deeply into any front or rear rails of the base cabinet. Simply add a few more metal brackets across the front and back to secure the weakened rail to the chopping block. If there is no front rail on your cabinet, there will be a partition at each side of a drawer. Build the block of a size to span the opening, and anchor with metal brackets to two partitions near the front. •

Miter gauge, locked in its slot, will serve as a gauge to provide same spacing for all bolt holes.

Before cinching, check for levelness. Quill feed serves as extra clamp to help tighten the bolts.





What could be more useful in an apartment or small home than a desk which takes no floor space? You can make it of inexpensive plywood.

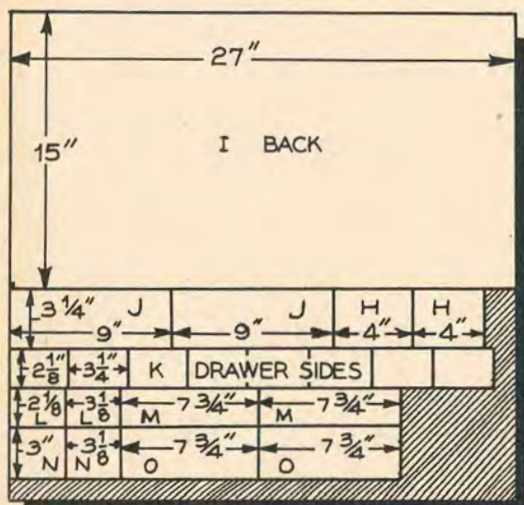
HANGING WALL DESK

WHEN space is at a premium, this wall-hung design gives a good answer to the need for a desk—in the den, living room, kitchen, or elsewhere. Painted to match or contrast with the wall, it becomes an attractive built-in and can be constructed of inexpensive fir plywood.

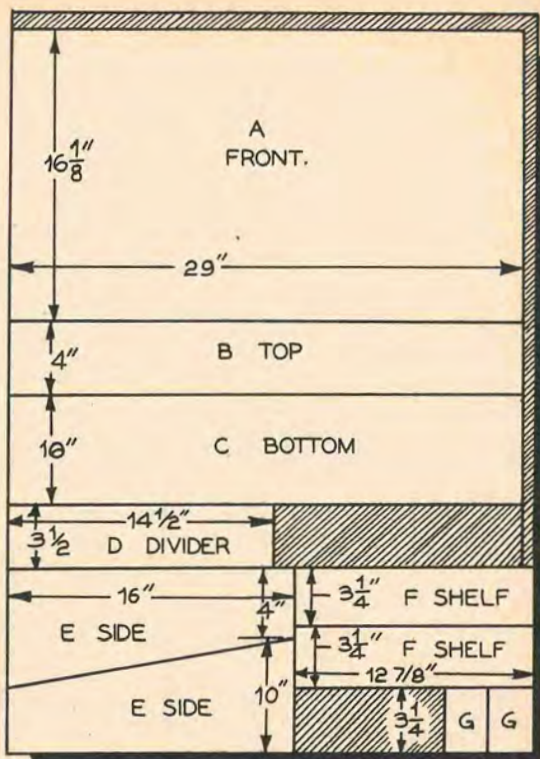
Its four outer corners are mitered, as shown, on the table saw. Upper and lower edges of the door and the forward edges of the top and bottom are cut to a 7-degree angle on the saw. Dividers and shelf all have simple butt joints. Smooth all exposed plywood edges on the 12-in. disc sander and use both nails and glue on all joints. Assemble the three hardwood dowels (left

overlong) when attaching the center divider. When the glue has set, cut off the dowel ends flush with side dividers.

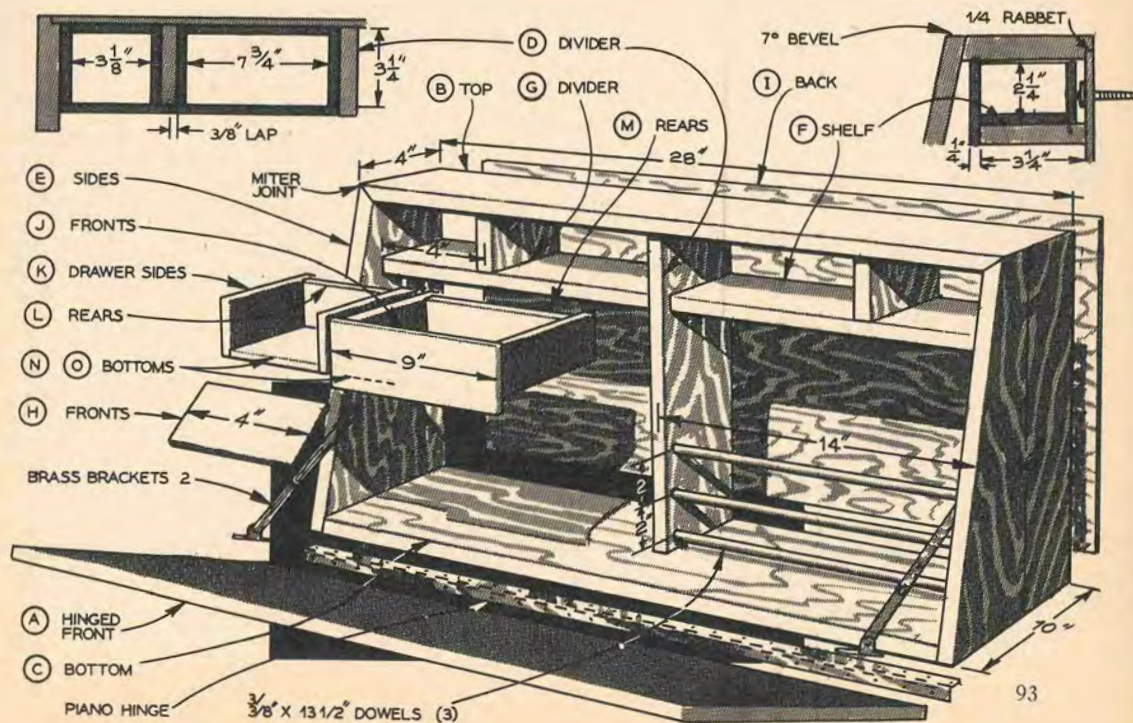
The drawer fronts extend $\frac{1}{4}$ in. below their shelves, providing fingerpulls. Use glue and small brads to assemble the drawers. If desired, a hard-plastic surface, such as Textolite or Micarta, can be cemented to the inside of the door, full-size of the door, if done before the door is hinged. Smooth the edges of the plastic, along with the edges of the door, on the 12-in. disc sander. Note that the door is $\frac{1}{8}$ in. wider than the desk on sides and top. Two $2\frac{1}{2}$ -in. wood screws, as shown, will secure the desk if set into wall studs. •

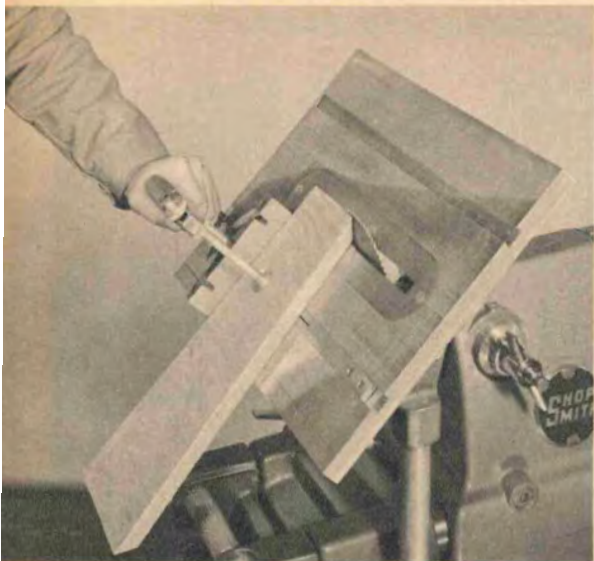


1/4" X 27" X 27" PLWOOD SHEET

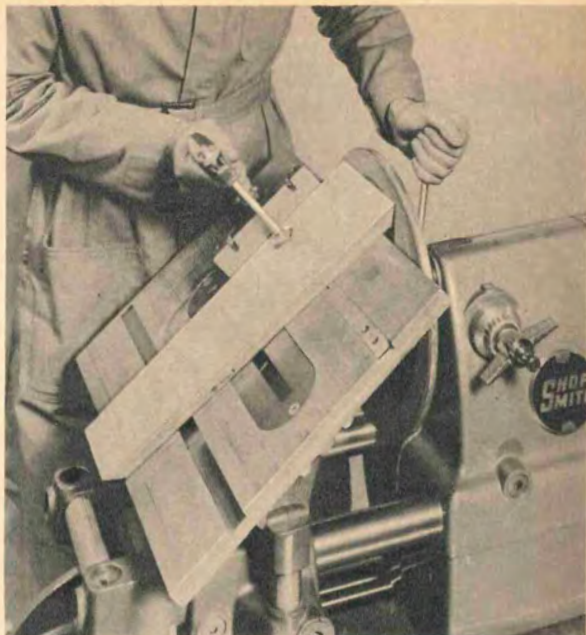


3/4" X 29" X 41" PLYWOOD SHEET





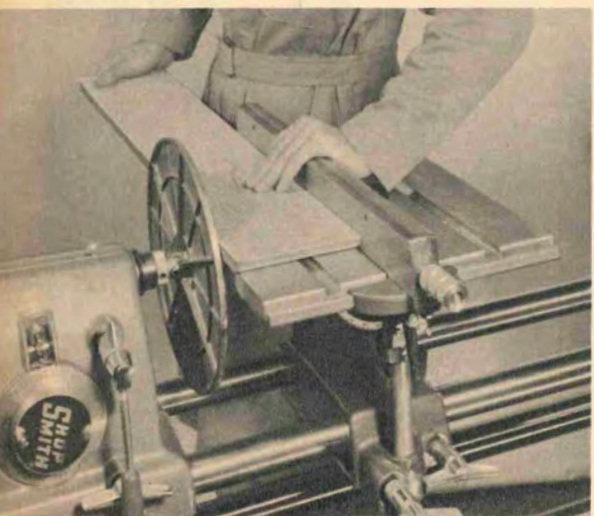
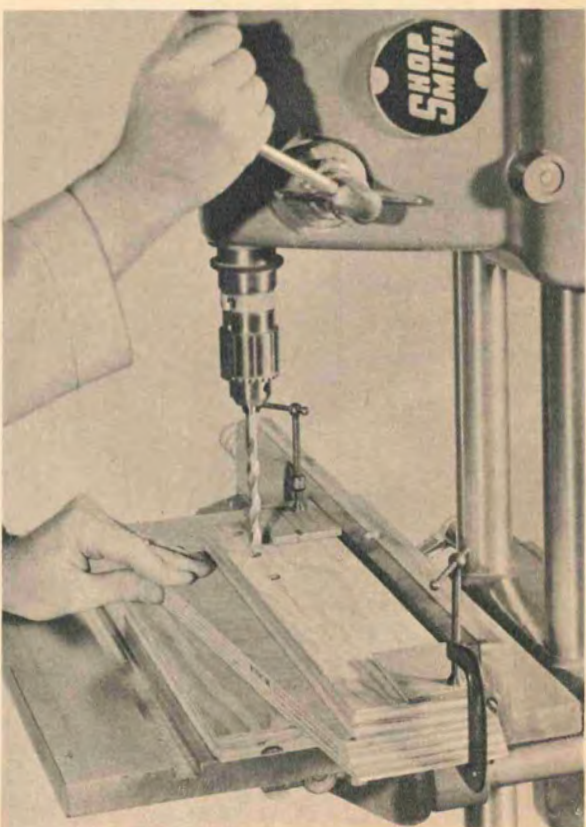
Above. Hanging Wall Desk's four outer corners are to be mitered on the table saw, as shown.



Above right. Use disc sander for smooth corners. Advance disc on quill feed in finishing joints.

Below right. Drill holes in both pieces at once for parallel dowels. Set the quill depth control dial to drill halfway through the outer piece.

Below. Smooth all exposed edges with disc sander. Fill veneer voids with wood putty first; feed from tool's rear with rip fence at slight angle.





CROSS-LEGGED BARBECUE TABLES LARGE AND SMALL

The big tables seat six adults and the little ones seat four children.
For long wear, use redwood or wood finished with redwood resin sealer.

REALLY a very old design, the cross-legged barbecue table has nevertheless proved itself fully modern by its widespread use on the patios and in the activity rooms of modern homes. Much of its popularity is due to its ranch house lines, to its lightweight and non-tipping features and to its separate benches that can be used at numerous other times than mealtime.

Given here are the full-sized table to seat six persons, and a junior size that will seat four children. The latter is of 24 in. height—for four to twelve-year-olds—and can also be used as a serving or work table at the barbecue. Legs of the tables and benches bolt together, can be disassembled to take up a minimum of storage space in

your attic, basement or garage during the cold winter months.

The leg construction for these tables and benches, seemingly tricky, is actually of the simplest. You cut all legs exactly the same, a production-line setup, without changing the miter gauge setting and with the half-lap on the same side. Simply turning one completed leg over gives the other half of a pair, with the result that all legs are uniform.

The tables and benches are designed to use any inexpensive softwood, 2-in. stock. Redwood is excellent; any other softwood can be stained with redwood resin sealer for the same end product. Redwood or a redwood finish is probably the easiest to maintain if the table stays outdoors in the

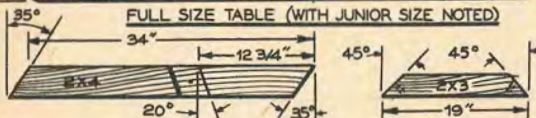
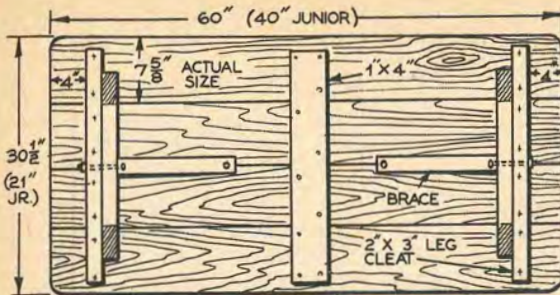
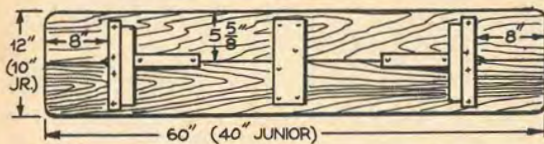


TABLE LEGS (4) (ALL CUT ALIKE WITH HALF LAP ON SAME FACE)

TABLE BRACE (2)



BENCH LEGS (8) ALL ALIKE WITH HALF LAP ON SAME FACE

BENCH BRACE (4)

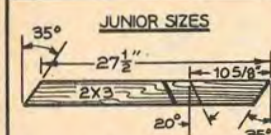
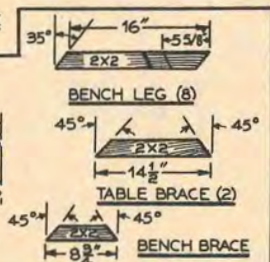


TABLE LEG (4) ALL ALIKE WITH HALF LAP SAME FACE



BENCH LEG (8)

TABLE BRACE (2)

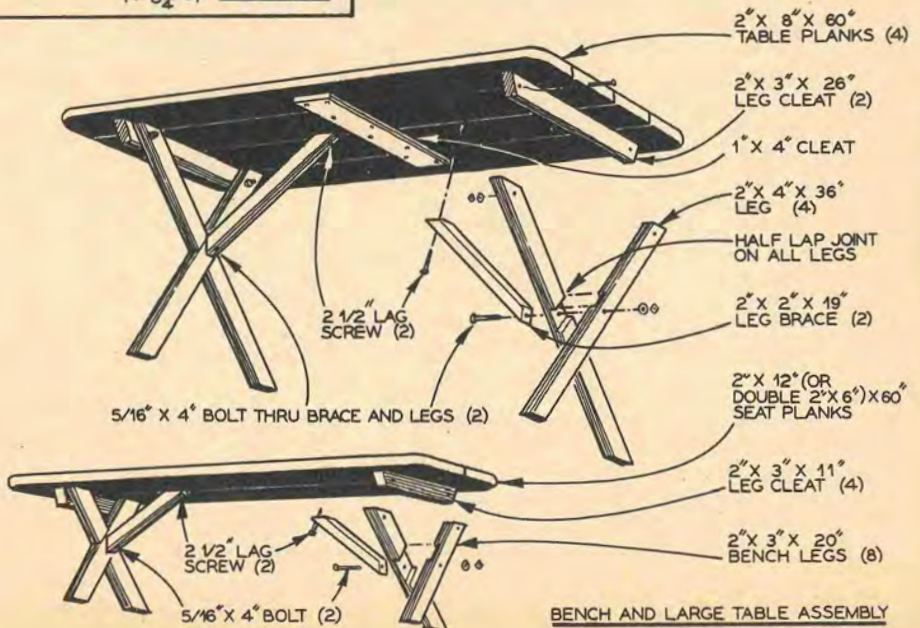
BENCH BRACE

sun and rain. Clear lumber is optional. Tight knots will add a colorful "western" touch.

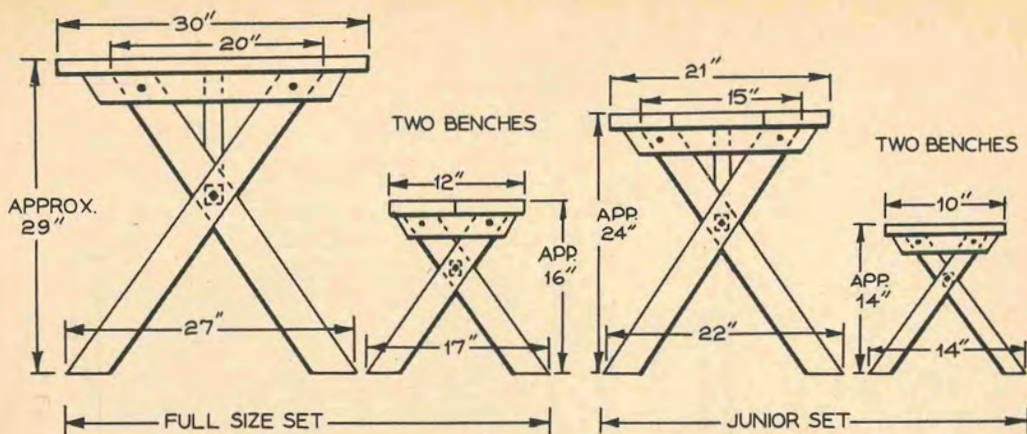
Three crosspieces secure the table boards. The middle crosspiece is nailed and glued to the underside. The outer, 2 x 3, leg crosspieces are glued and screwed, from below or from above, if preferred, with the screws countersunk in the top and plugged with wood doweling. Glue blocks of scrap stock will add further strength to the leg crosspieces of the tables, but are not needed with the shorter legs of the benches. If a single 12-in. board is used for the benches, the need for a middle crosspiece is automatically eliminated.

Legs are cut to dimensions given, with the miter gauge of your table saw set to provide the angles shown. On the dado blade, cut the half-lap joints to the width of the leg material you are using. Drill oversize, 3/8-in. holes for the 1/8-in. bolts so the weight will be carried by the wood joints instead of the bolts and so the legs can be easily disassembled at any time. The 4-in. bolt at the half-lap joint passes through all three pieces; drill this hole through the brace after the legs are bolted to the table top. The opposite end of the leg brace is secured by a 2 1/2-in. lag screw or a 2 1/2-in. No. 14 wood screw, countersunk into the table top.

Matching large and small barbecue tables are an easy solution to the problem of entertaining friends and their young children at the same dinner party. The youngsters find outdoor meals festive and exciting, and you'll discover that they enjoy sitting at a table with their contemporaries. •



BENCH AND LARGE TABLE ASSEMBLY



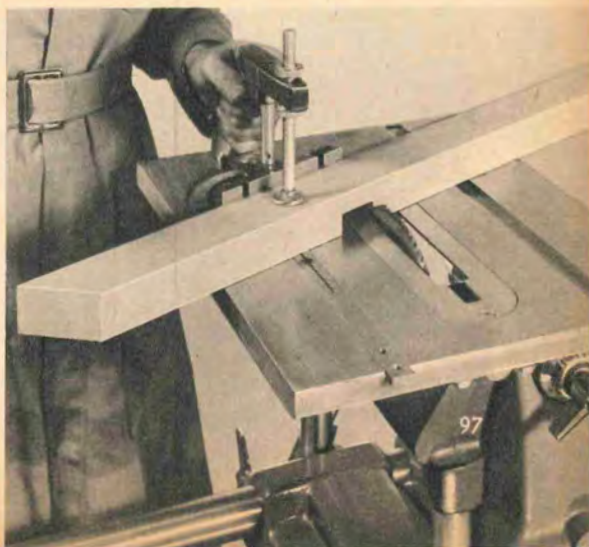
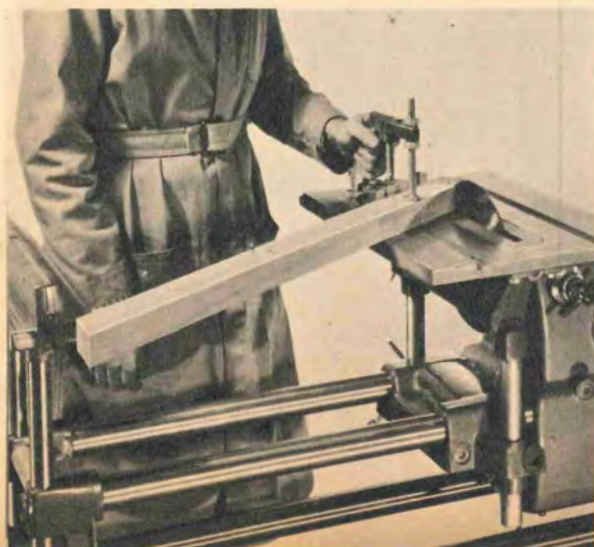
The small size barbecue table has more than ample space for four children—and they'll love it!

Here rip fence is a stop block to cut all legs same length. Work clears fence before cut starts.



Construction is knock-down for winter storage. Legs have wider spread at bottom for stability.

Dado blade is used to cut all half-lap joints on same side of work with same miter gauge setting.





BARBECUE WORK COUNTER

When the smell of steak wafts up from your charcoal grill, this counter has tools, towels, plates and seasonings all in easy reach.

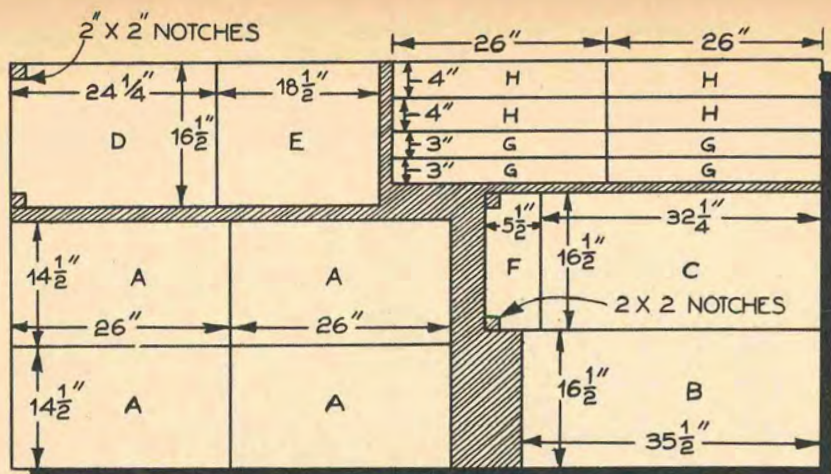
AS any outdoor chef will agree, what we need alongside today's charcoal grill is an outdoor work counter, a place to prepare things, a place to keep things. In other words, we need something similar to the countertop cabinets of the kitchen.

Here is such an item. Its top features a large chopping block, the best for barbecuing. Its cabinet keeps handy anything you may want for outdoor cooking. One end is recessed to keep the barbecue fork, basting brush and such things immediately at hand, and the opposite end holds a convenient roll of paper towels. This counter is on wheels, to follow today's portable brazier about the patio and also to serve as a side

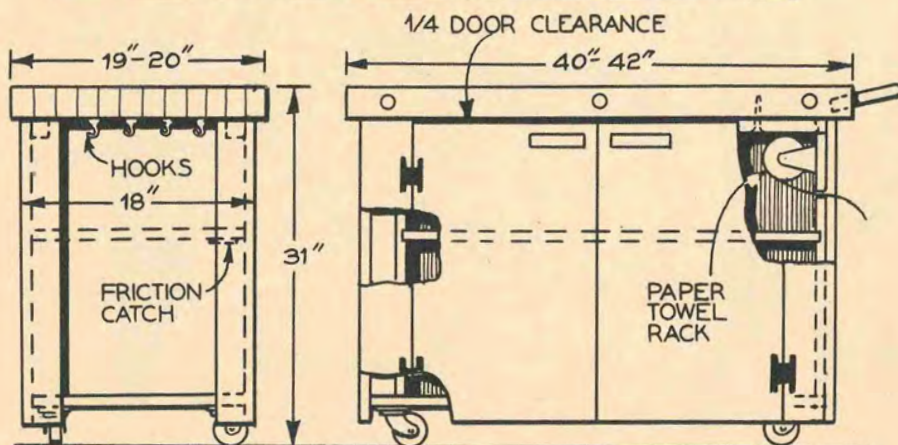
table or serving cart for extra dishes when the barbecue table is crowded. It has doors on both sides, for convenient access to the storage shelves wherever it may be.

The base cabinet is built of $\frac{3}{4}$ -in. exterior-grade plywood; one 4 x 8 panel yields all parts. Ordinary exterior fir plywood serves well when painted. Vertical-cut fir or redwood is very attractive natural or stained, and textured fir plywoods, such as Plyweave, Shadowood, etc., are excellent for any barbecue furniture.

Dimensions of the various pieces of the cabinet are given on the plywood cutting schedule. The "G" and "H" pieces of the four corners are mitered on the table saw,



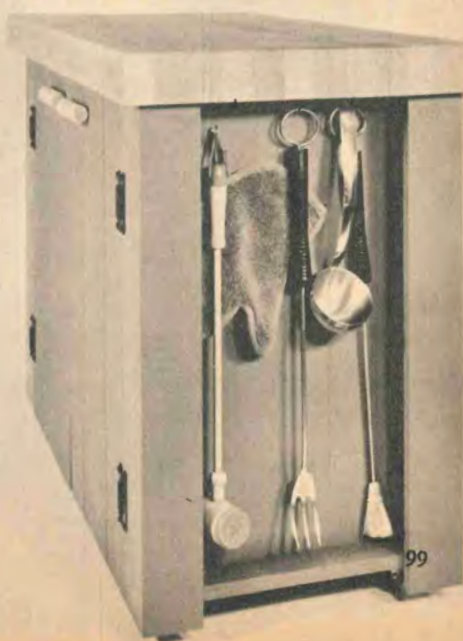
ONE 3/4" X 4 FT. X 8 FT. PLYWOOD SHEET FURNISHES ALL PARTS

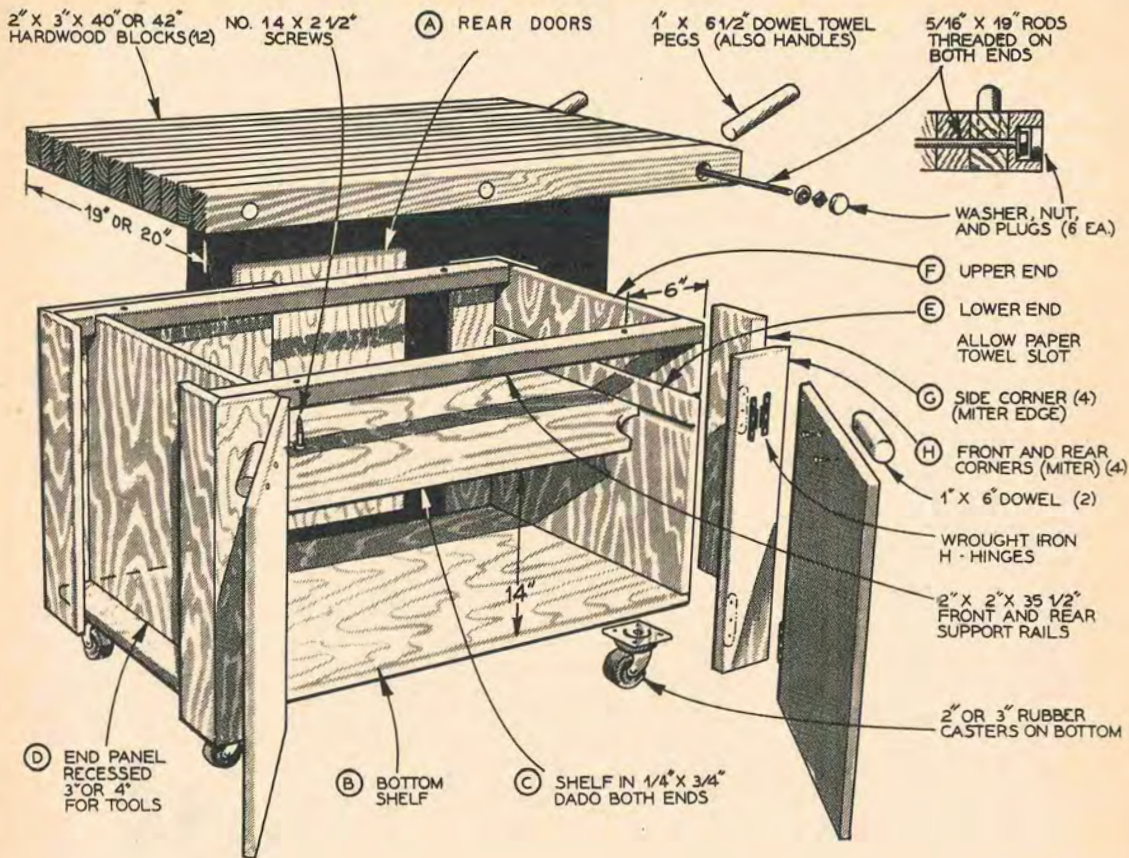


MATERIALS USED IN EXAMPLE

- 12 pcs.—2" x 3" x 40" fir (for chopping block)
- 2 pcs.—2" x 2" x 35" fir (for cabinet rails)
- 1 3/4" x 48" x 96" panel, vertical grain ext. fir plywood
- 1 3 ft. length 1" hardwood doweling
- 3 19 in. lengths 5/16" iron rod, nuts & washers for each end
- 4 pr.—3 in. black-iron, H-shape hinges
- 4 Washington cupboard catches (nylon)
- 4 3 in. rubber-tired casters, flat-plate type
- 1 paper towel holder
- 4 brass cuphooks
- 4 2 1/2" No. 14 f.h. wood screws, galvanized
- 8 1 1/2" No. 6 f.h. wood screws, galv., for door pulls
- #6 galv. nails and waterproof glue

Right. Note that the tools used most frequently hang on cuphooks in recessed end of the counter.





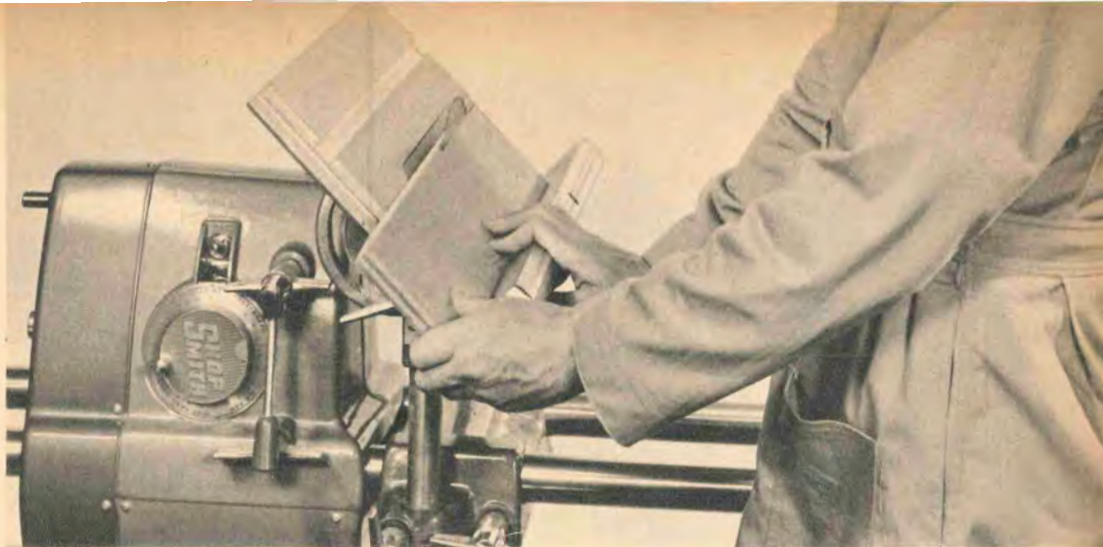
Left. Paper towels, from dime-store holder, are available through slot between "E" and "F."

and glued and nailed together individually. They are then attached to the bottom "B." Before attaching the ends, cut notches in them for the two 1 5/8-in. rails. Cut these notches deep enough so the rails will be 1/8 in. or so below the top of the cabinet. Thus, if the bottom of the chopping block is not perfectly level, it will still rest solidly on the cabinet ends.

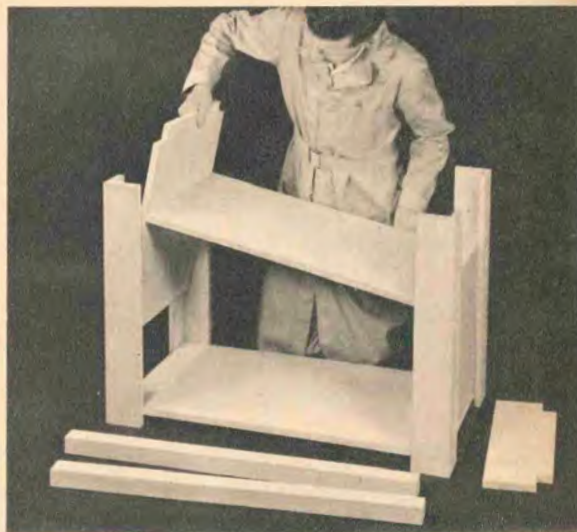
Nail and glue end "E" to the corner pieces and then end "D" with shelf "C" already nailed and glued to it. Leave 1/4 in. space between "E" and "F" for the paper towel slot. Nail the two rails to both the "G" and "H" members.

The four doors can now be hung. Note





Pieces "G" and "H" are to be mitered, as shown above, on table saw of your multi-purpose tool.



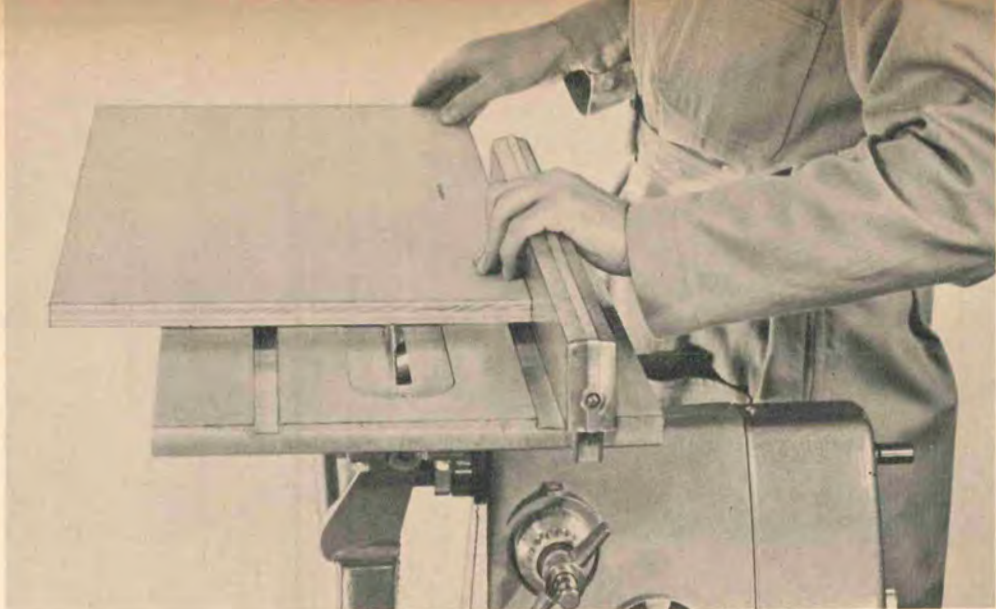
Right. All pieces of counter's base cabinet are shown in photograph with exception of the doors.

that they are trimmed to leave $\frac{1}{4}$ in. clearance at the top to clear the chopping block. You may prefer to cut shallow saw kerfs down the fronts of the doors to simulate several boards. The rust-resistant black iron "H" or strap hinges are attractive here and require no mortising. Nylon friction catches hold the doors, and 5-in. lengths of the 1-inch dowel needed for the chopping block make good door pulls. Smooth a flat surface on the side of the dowel that goes against the door with your 12-in. disc sander to prevent looseness.

Give the entire cabinet—underneath, too—a coat of clear or white resin sealer and then finish as desired. Finally, attach four

casters to the bottom, far enough from each corner to allow the casters to swing in a full circle. The bigger the caster wheel, the better.

Best wood for the chopping block top is maple, but maple is expensive. Any hardwood can be used for the outdoor counter, or even a fairly hard softwood such as fir or certain pines. Seasoned dry wood is definitely needed to prevent shrinkage and cracks from the sun. The three holes through all pieces for the bolts are drilled on the horizontal drill press of the multi-purpose tool, using a stop block for exact alignment. Full details of this block construction are given under section entitled



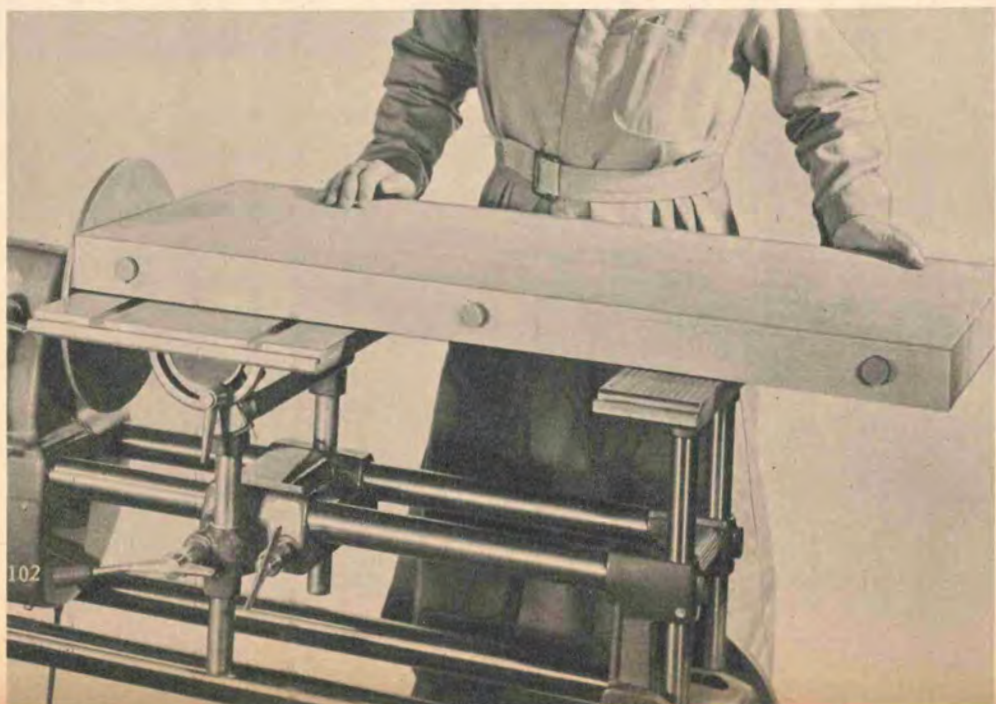
Optional is the cutting of shallow saw kerfs in your doors to provide effect of several vertical boards.

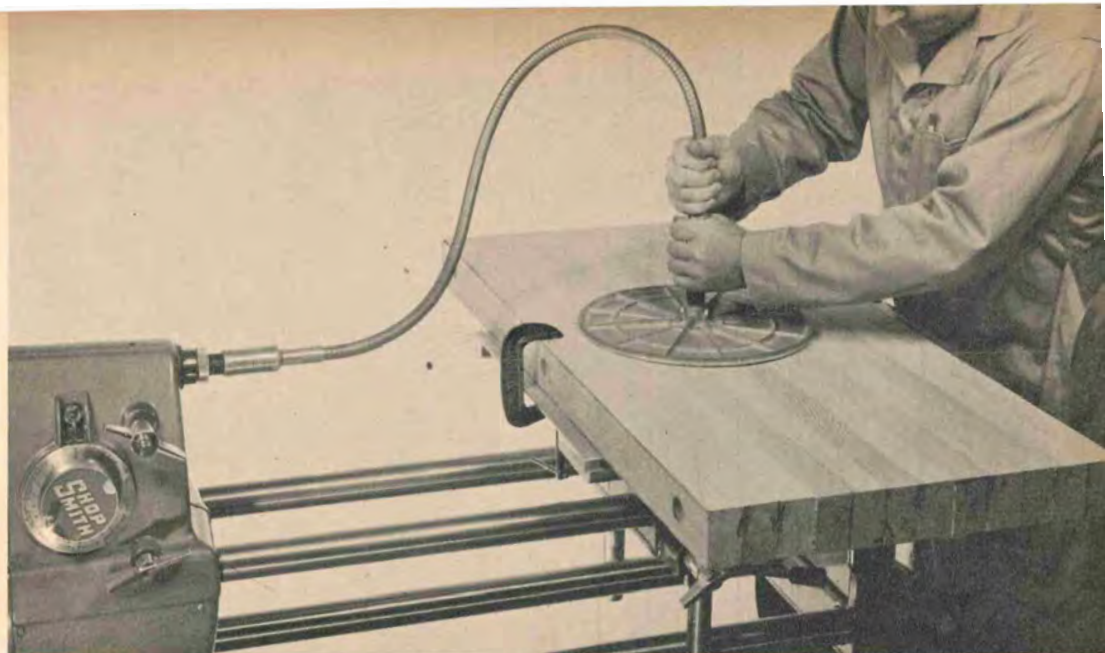
COUNTERTOP CHOPPING BLOCKS.

When glued and dry, your block needs sanding to smooth out any imperfections. Never use a plane on the varying wood grains. Your 12-in. disc sander will smoothly finish the dowel plugs, sides and ends. Under normal sanding pressure, you can push the heavy block flat against the sanding disc without danger of "kicking" at the "up" side of the disc. By using a flexible cable, as shown, the disc sander

will also smooth the top to a level, machine-like finish. For this, turn your Speed-Dial to SLOW (700 rpm) and hold the sander flat against the work, obtaining a scouring action as you slide it across the surface. Tilting the rigid sander will cause it to jerk in your hands and leave grooves in the work. Use light pressure and medium-grit sandpaper. You can also use your 6-in. lathe faceplate on the flexible shaft for this surface sanding, with 6-in.

Sides and ends of chopping block are easily smoothed on 12" disc sander. Use paper of medium grit.





Smooth top with flexible shaft and 12" sanding disc or 6" lathe faceplate with 6" sandpaper disc.

sanding discs cemented to it, if you wish.

The two holes for the towel-peg handles are drilled $2\frac{1}{2}$ in. deep and $2\frac{1}{2}$ in. from the corners of the block. Use your multi-purpose tool as a vertical drill press, as shown, clamping the chopping block to the table, which is set at an angle 10 degrees from the vertical. Two $6\frac{1}{2}$ -in. lengths of 1-in. dowel are glued into these holes after rounding off one end of each of them on your sander.

The chopping block does not need a full finish of varnish or lacquer. It should be given one coat of resin sealer—top, sides and bottom—to prevent its absorbing too much moisture outdoors. A coat of any available cooking oil, simply wiped on, completes its finish. Attach the block to the cabinet by four $2\frac{1}{2}$ -in. No. 14 wood screws through the two rails, and your barbecue work counter is complete—ready to set up next to your outdoor grill. •

Right. For exact positioning of towel-peg handles, drill holes for them with vertical drill press with table set at 10 degrees from the vertical.





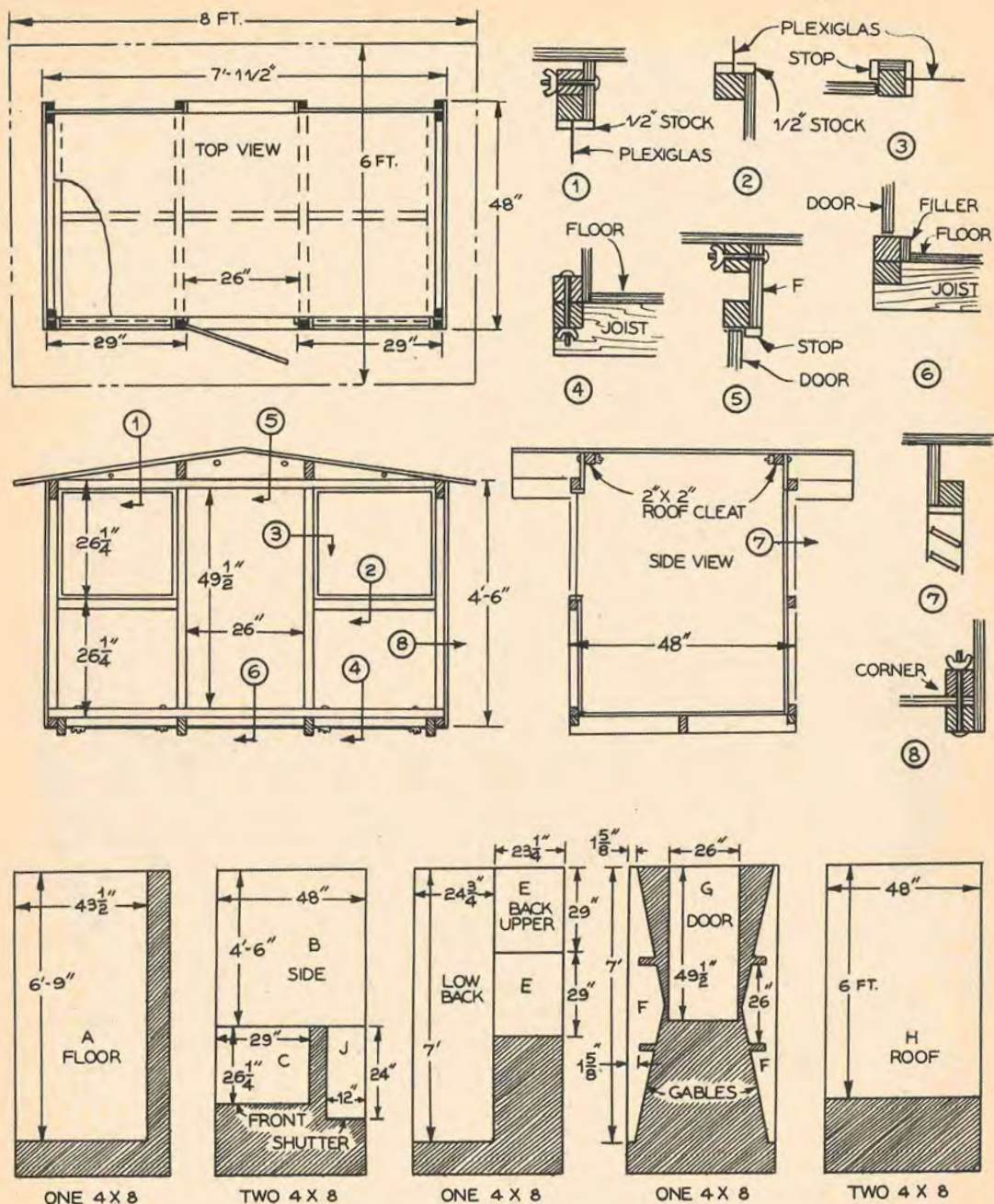
CHILD'S TAKE-DOWN PLAYHOUSE

It's a jungle trade post . . . a space station on the perilous moon route. And, for anxious parents, it's assurance they're safe and happy in their own yard.

HERE is a play house to renew any child's interest in his own back yard. Its 4 x 8-ft. "floor plan" will shelter several children and their toys. The cheery front windows are unbreakable, safe, and the ventilation via the louvered rear window is never forgotten, never left open to a rain.

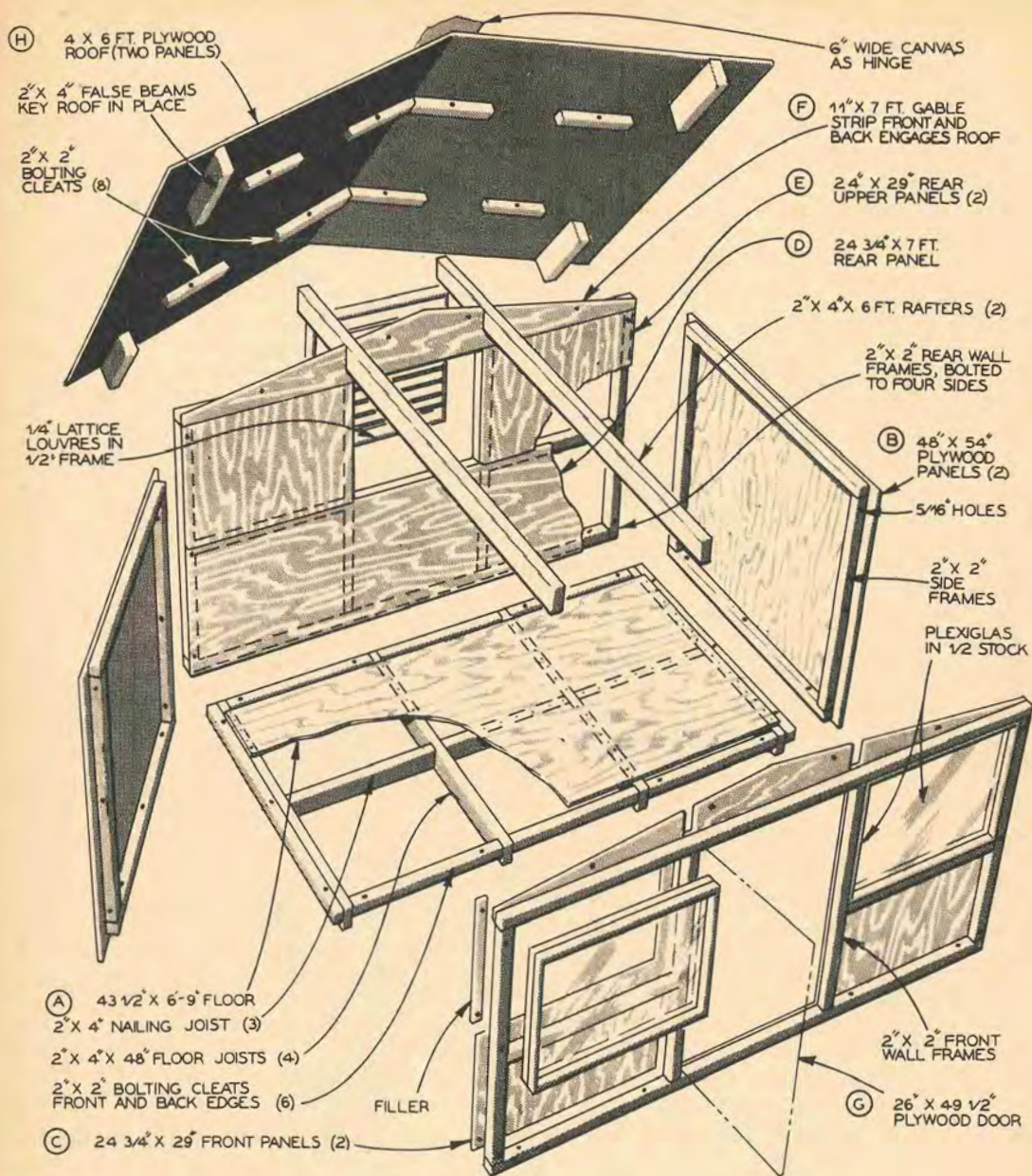
Best of all, this play house need never become musty or old. It is fully take-down; the six sections and two roof beams can be stored away through the winter season. Or, with its mere 5½-ft. overall height, the play house can be set up in your basement during the cold months.

This is really a house-building project,



though far from difficult, as your multi-purpose tool will handle every cut required. For the plywood, ordinary rotary-cut fir panels of any exterior grade and in either 1/2, 5/8 or 3/4-inch thickness is used throughout. There is no need to purchase a "marine" grade of exterior plywood. Though such plywood has no blemishes on

either side, it is no more waterproof than a less-expensive A-C grade of exterior plywood and the small blemishes of the latter do not detract from the appearance or strength of this construction. The floor joists, 2 x 2 framing and the roof beams should be of No. 1 or No. 2 common structural lumber.



As shown by the drawings, the major sections of the house are its floor, four sides and the roof. All sides bolt together and to the floor section. Use 8d casing or finish nails to attach the floor to its 2 x 4 joists. Use 6d casing or finish nails to attach the 2 x 2 framing to the sides and to the two gable strips.

Throughout the entire construction, it is preferable to use galvanized nails to pre-

vent rust spots under paint and to use galvanized bolts and wing nuts for easy assembly. When cutting the larger pieces of plywood on your table saw, make full use of its extension table and, if alone in your workshop, use some homemade extension stand (or one of the other extension stand possibilities shown in this book) to provide support for the opposite end of the 8-ft. panels.

The roof anchors to the front and rear sides of the play house by bolts through the gable strips and through the 2 x 2 bolting cleats on the underside of the roof. Use glue and 6d nails to secure the bolting cleats to the roof; use glue and 8d nails to secure the 2 x 4 false beams to the roof. Any fairly heavy canvas can be utilized for the hinge of the two roof sections. Use galvanized tacks and any waterproof glue or cement on hand to secure the canvas, and it is best to use a tent preservative or a paste floor wax, thinned with turpentine and well soaked in, on the canvas. If painted, the canvas will crack under repeated folding.

Windows of $\frac{1}{8}$ -in. plexiglas or other rigid plastic are preferable, but for economy, they can be of translucent plastic cloth, the inexpensive type with a fly screen bonded into the middle. In a warm climate, the windows can be left open, if desired, or simply covered with aluminum, galvanized or plastic fly screen. The rear louvered window can be the same.

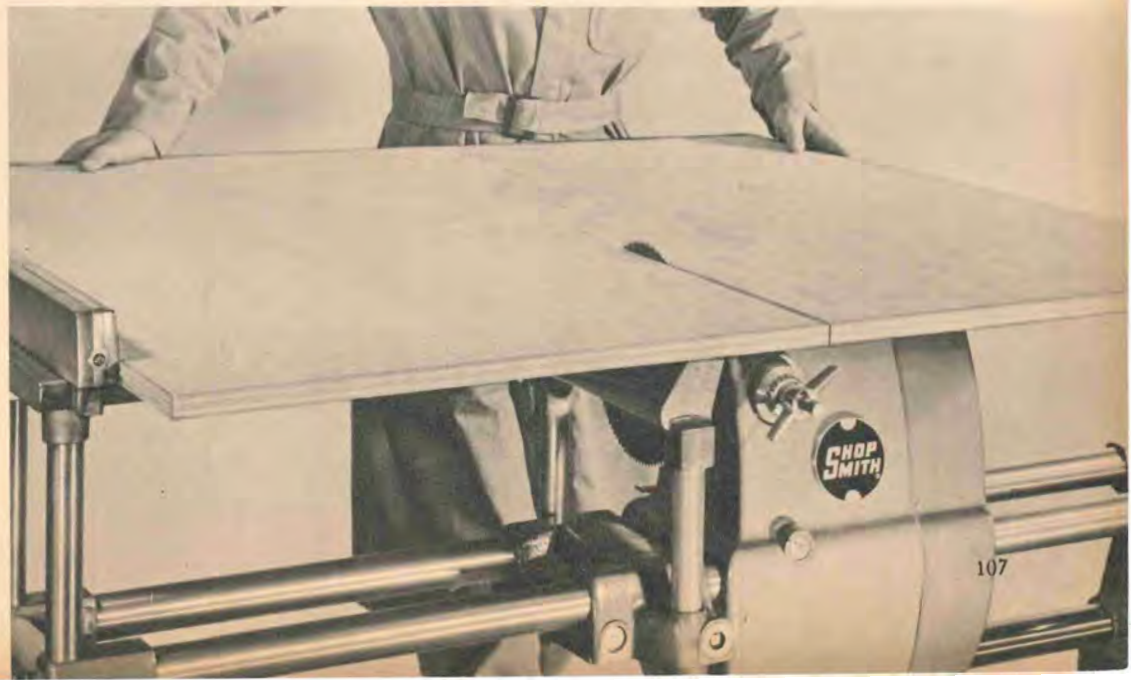
The plywood front door is best hung with a full length of piano hinge, or at least four 3 x $1\frac{1}{2}$ -in. butt hinges—to prevent warping and because children will not be able to resist swinging on it. The door latch should be one made for a closet or cabinet, of a type that cannot be locked from the inside. If a keyed lock is desired it is best to use a separate cabinet or desk drawer lock.

To finish, first give the entire house, inside and out, a coat of white resin sealer. This both protects the wood against moisture and prevents undue grain rise in the plywood. Finish the outside with two coats of any good exterior paint. Inside, an attractive and simple modern finish is obtained by brushing a fairly thin coat of paint of the desired color, over the white resin sealer, wiping it off with rags while still wet, and, finally, applying a coat of wax, thinned shellac or wallpaper lacquer. Best to try a sample of scrap plywood first, to find how much to wipe your particular paint for the desired toning. This gives a toned or stained "natural" finish—the grain shows through the thin coats but without overly accenting the plywood's rotary grain. The finish has the definite advantage of not showing bumps and scratches as would any enamel or other solid coloring. •

MATERIALS REQUIRED

7 pcs.—4' x 8' x $\frac{1}{2}$ ", $\frac{5}{8}$ ", or $\frac{3}{4}$ " ext. plywd.
 40 lin. ft.—2" x 4" studs
 122 lin. ft.—2" x 2"
 32 lin. ft.— $\frac{1}{2}$ " x 1"
 40 lin. ft.— $\frac{1}{2}$ " x $2\frac{1}{2}$ "
 8 metal hinges
 3 metal d-or handles
 36 $\frac{1}{4}$ " x 4" carriage bolts with wing nuts
 3 cupboard catches

All pieces needed for the play house can be cut to the size required on the multi-purpose power tool.





AN ASHTRAY FOR YOUR PATIO

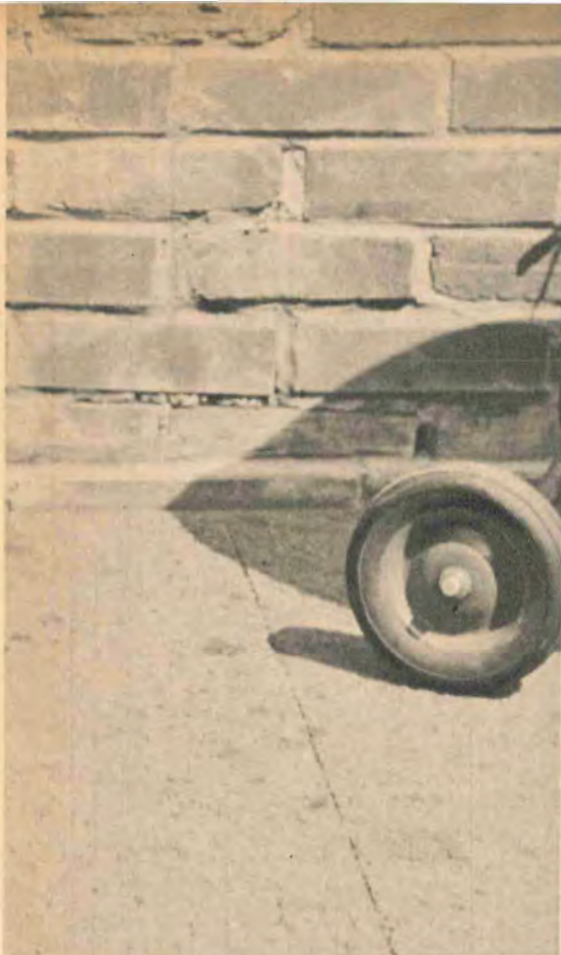
Outdoor smoking is a pleasure when you can smother sparking ends in an attractive sand-filled wooden bowl supported by three chair-height legs.

ARE you always short an ashtray on your patio or sunporch? Does a breeze fan any smouldering cigarette you leave in one—or blow its ashes into your face? Here is a different ashtray, one designed for the patio, one without such faults. It is evolved from the charcoal braziers so popular today. Two or three can be made in one evening—made in three simple steps.

Turn a bowl: On your wood lathe, turn a bowl of approximately 8-in. diameter—of any wood and of any shape desired. Use a Shopsmith or similar 6-in. faceplate to hold the work, and secure the wood to it with three short screws in the outermost faceplate holes. When turning it, leave the bottom of the bowl a good $\frac{3}{4}$ inch thick.

Position leg holes: With the multi-purpose tool as a vertical drill press, set its table at a 15-degree tilt. Block the bowl as shown for drilling the leg holes—with miter gauge set at 45 degrees and locked in its table slot with the set screw on its arm, and with a scrap block of wood clamped to the table for the second leg of the V. The bowl can now be revolved on the table to obtain the same slant to all holes. Use a $\frac{5}{8}$ -in. auger bit to drill the three holes, and drill them through the screw holes left from the faceplate. This eliminates the screw holes and places the three legs exactly 120 degrees apart.

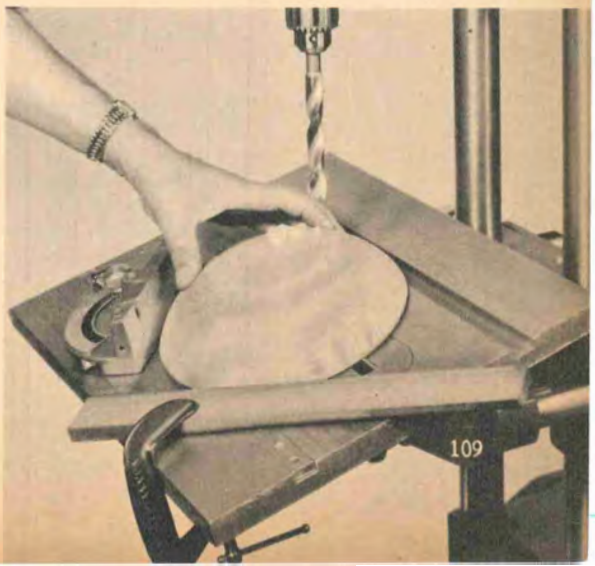
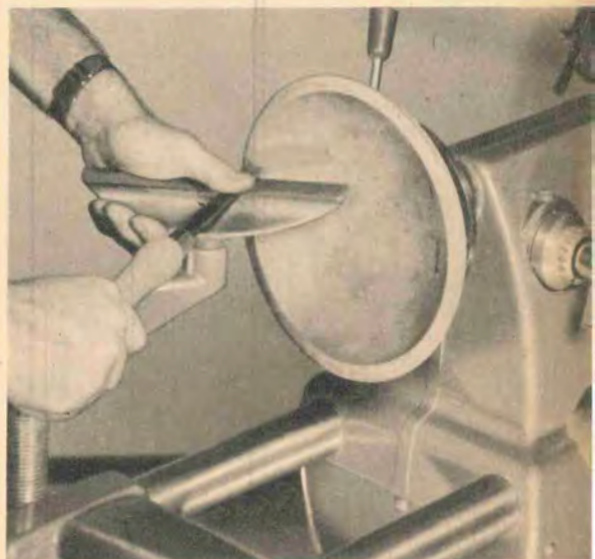
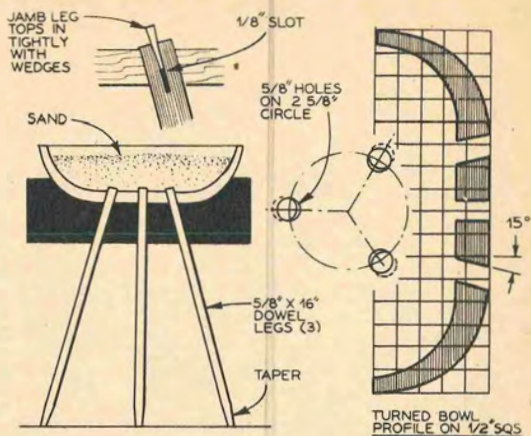
Attach legs: Three 16-in. lengths of $\frac{5}{8}$ -in. doweling make the legs. Cut saw slots

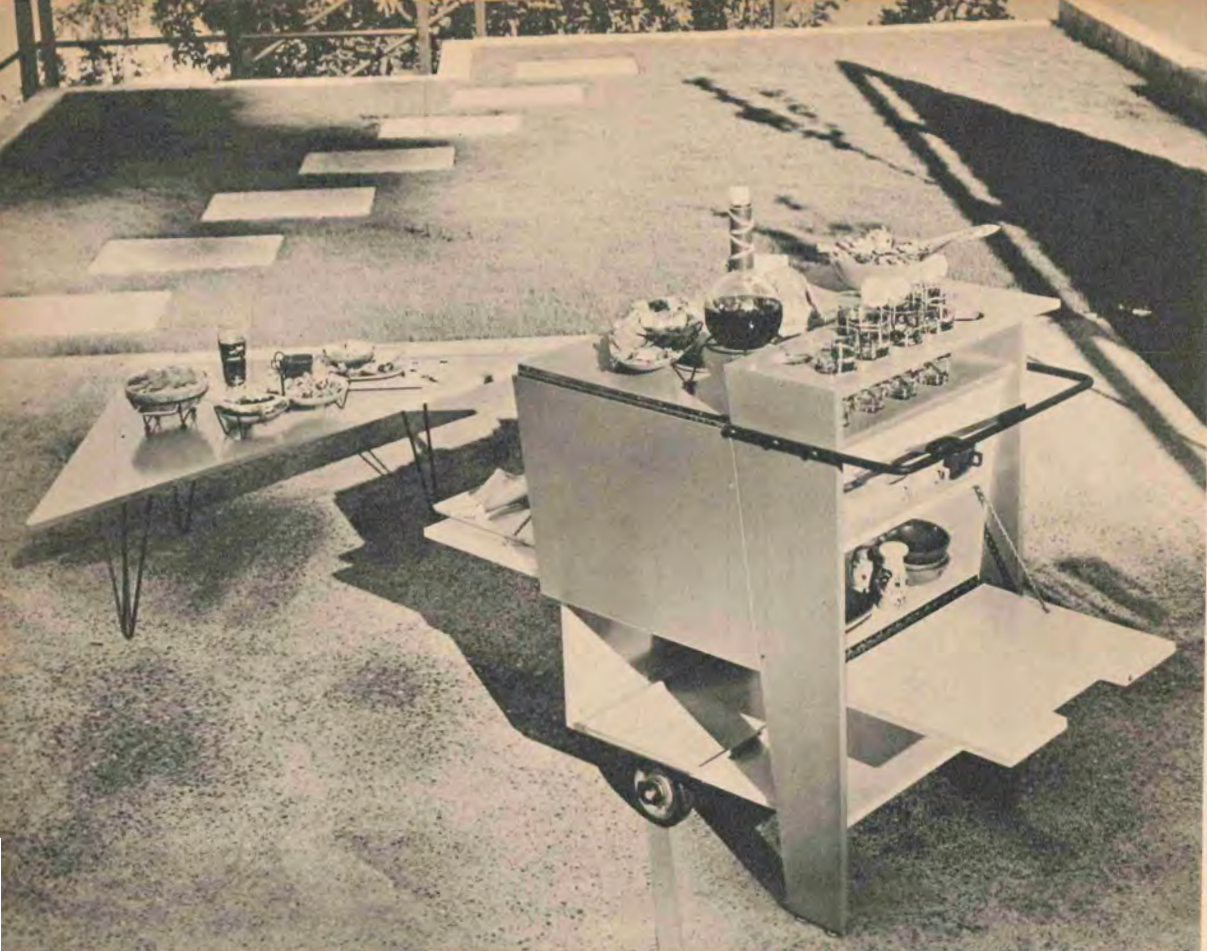


Right. On your multi-purpose power tool, turn an 8-in. bowl of any seasoned wood that's on hand.

With table at 15-degree tilt, drill $\frac{5}{8}$ -in. holes for dowel legs. Miter gauge and clamp position the bowl for all 3 holes, as shown lower right.

of $\frac{3}{4}$ -in. depth in the upper ends of the legs. For best appearance, taper the lower ends of the legs a bit on your 12-in. disc sander. Use both glue and wood wedges to secure the legs in the bowl. You can simply rub a coat of linseed oil on the bowl and fill it with sand for immediate use. Or you can paint these attractive patio ashtrays a dull black. To blend the ashtray with aluminum garden furniture, you also can use aluminum legs. Obtain a length of $\frac{3}{4}$ -in. (outside diameter) Reynolds Do-It-Yourself aluminum tubing and cut to the 16-in. lengths. Glue a 2-in. length of $\frac{5}{8}$ -in. doweling into the upper ends, slot and install with glue and wedges as with the wood legs. •





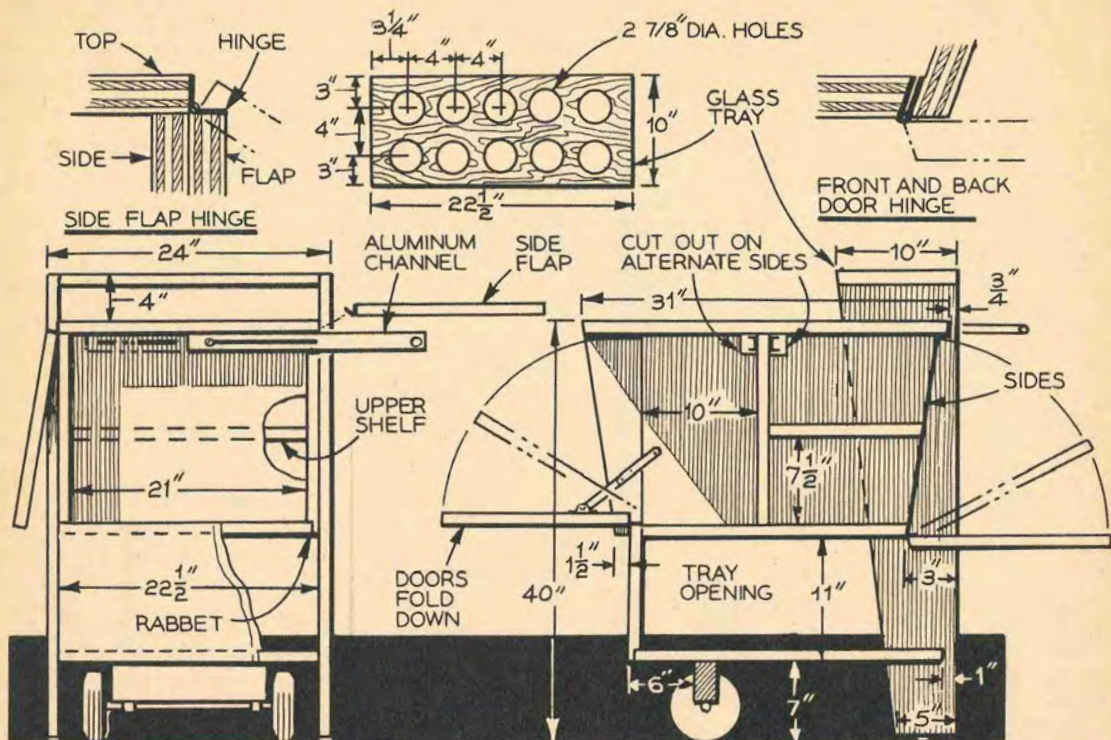
SERVING WAGON AND TRIANGLE TABLES

A handy server which can be stocked in the kitchen and wheeled to the outdoor patio will delight the hostess and the matching tables will please guests.

THE contemporary serving wagon shown here is an ideal means of conveying refreshments to the outdoor patio or terrace. Too, it opens out on all four sides to provide a multitude of uses. The triangle tables accompanying it are easily produced in quantity to scatter around the patio for accommodating a large group, and they can be placed together to form unusual modern designs.

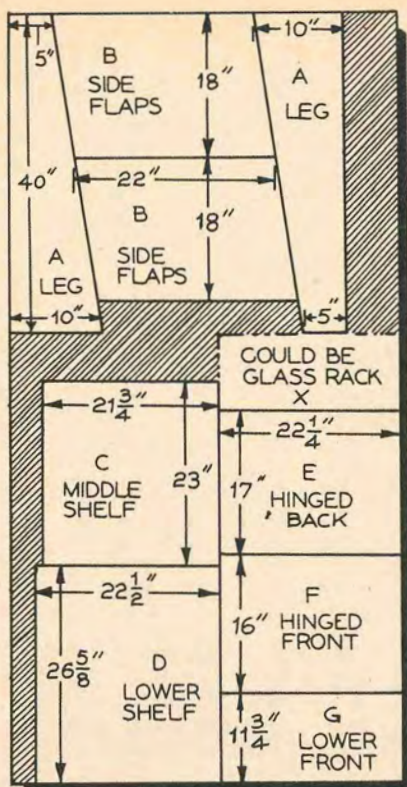
The simple construction of the tables is obvious from the diagrams and photos. You should use the exterior grade of fir plywood. The tables can be painted the same, or in contrasting colors. The hairpin legs can be purchased most anywhere today, or you can easily build the alternate legs shown of black iron pipe. See LOUNGE TABLE for further details of pipe leg construction.

Details of the serving wagon are given in its various views. Prac-



Low triangular tables may be scattered or pushed together to form a square or a modern jagged design.



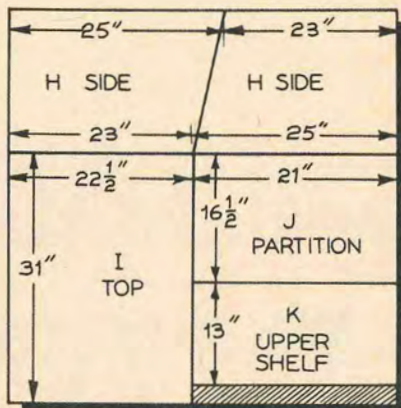


3/4" X 4 FT. X 8 FT. PLYWOOD

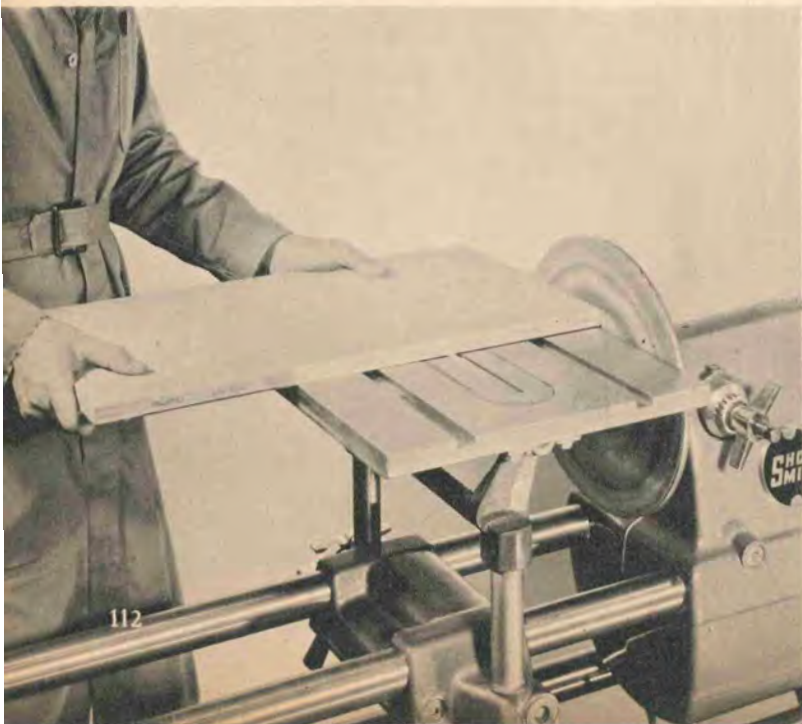
3/4" X 4 FT. X 4 FT. PLYWOOD

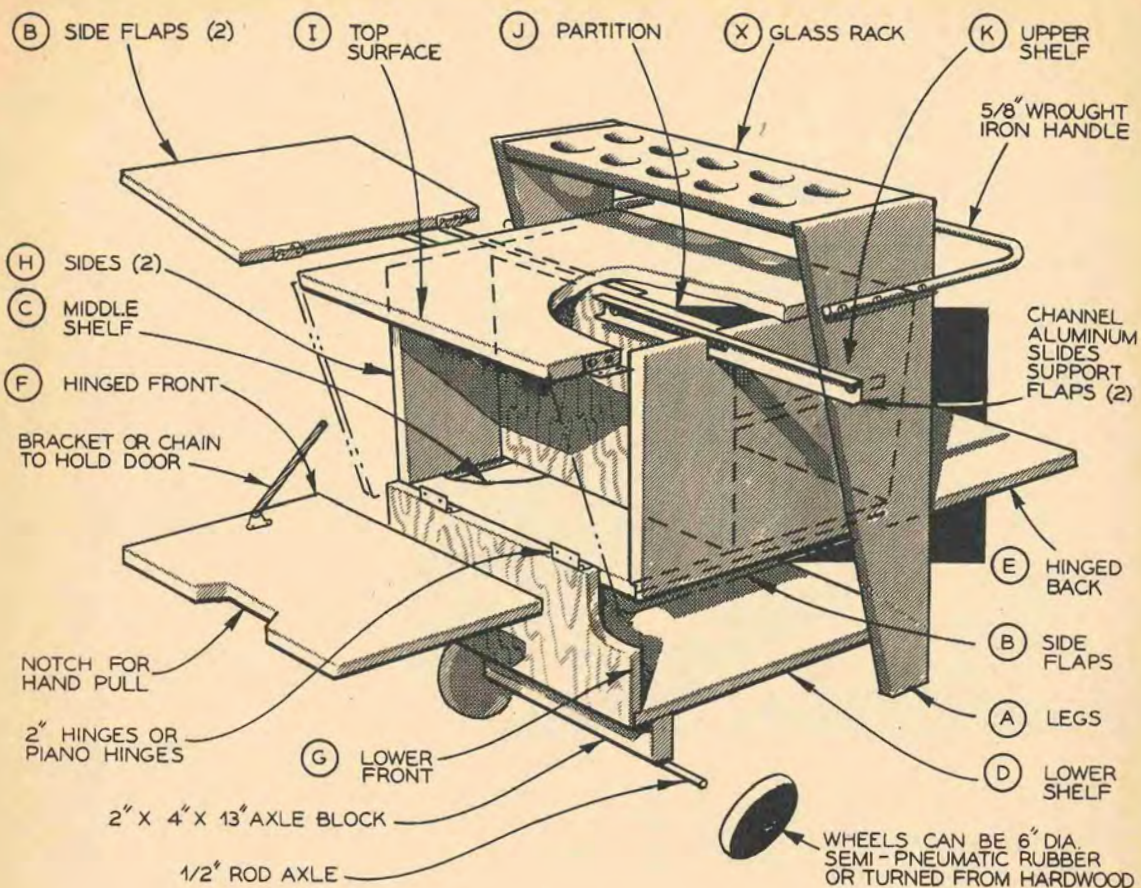
tically all parts are obtained from one 4 x 8-ft. and one 4 x 4-ft. panel of 3/4-in. exterior-grade fir plywood. Use both nails and glue on all joints and smooth all exposed plywood edges on the 12-in. disc sander.

Rubber-tired 6-in. wheels are best for the wagon, especially if to be moved over rough patio paving. However, they are expensive and satisfactory wheels of two thicknesses of 3/4-in. plywood can easily be turned out on the lathe from scraps. Mount either on a 1/2 x 18-in. iron rod axle, which is secured to its 2 x 4 support by four or six large staples. A two-tone paint job, as shown in the photos, adds to the modern lines of the wagon. •



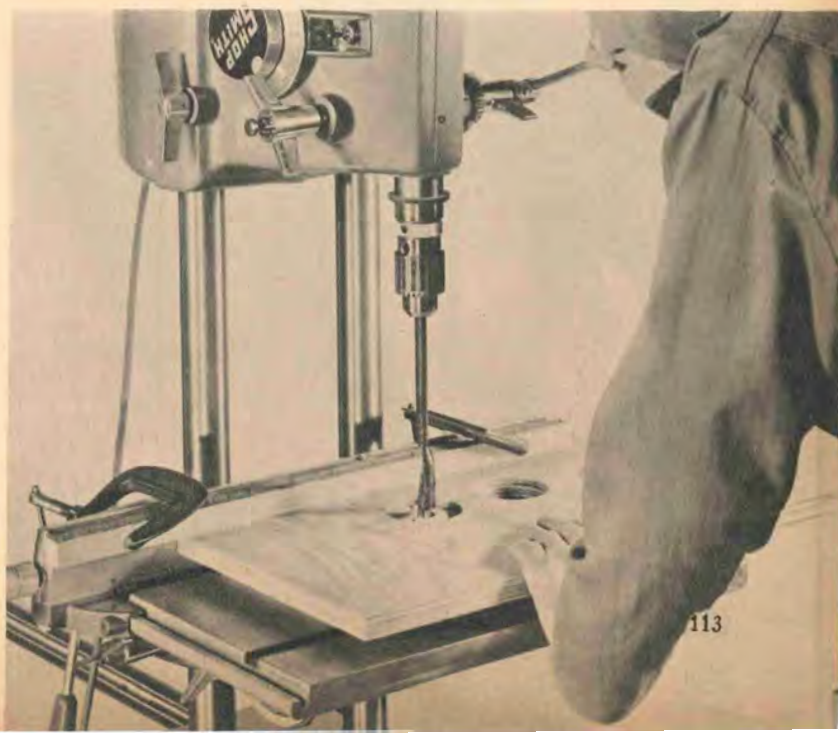
All exposed plywood edges can be smoothed down on the 12-in. disc sander of your multi-purpose tool. It can easily be done free-hand as shown at the left.

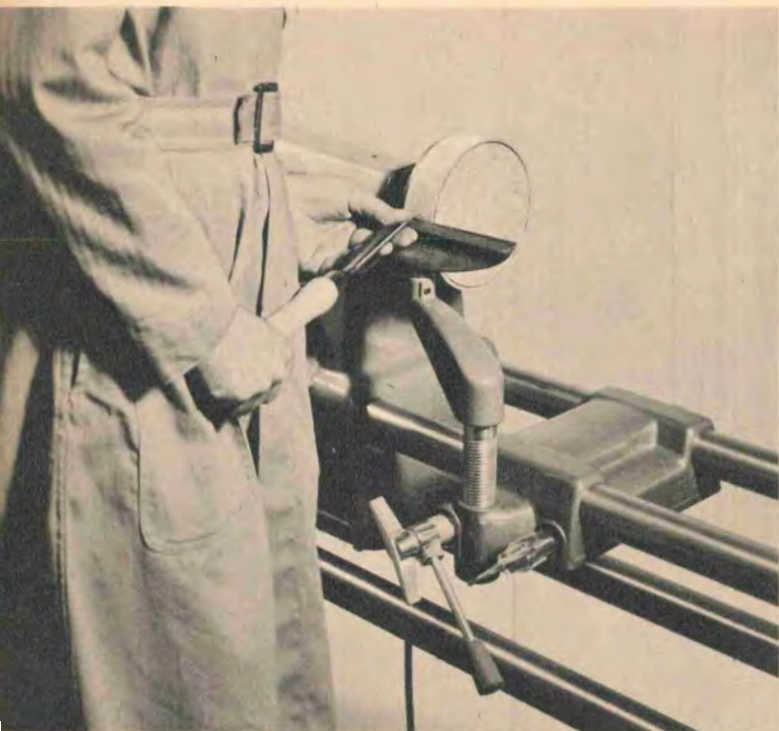




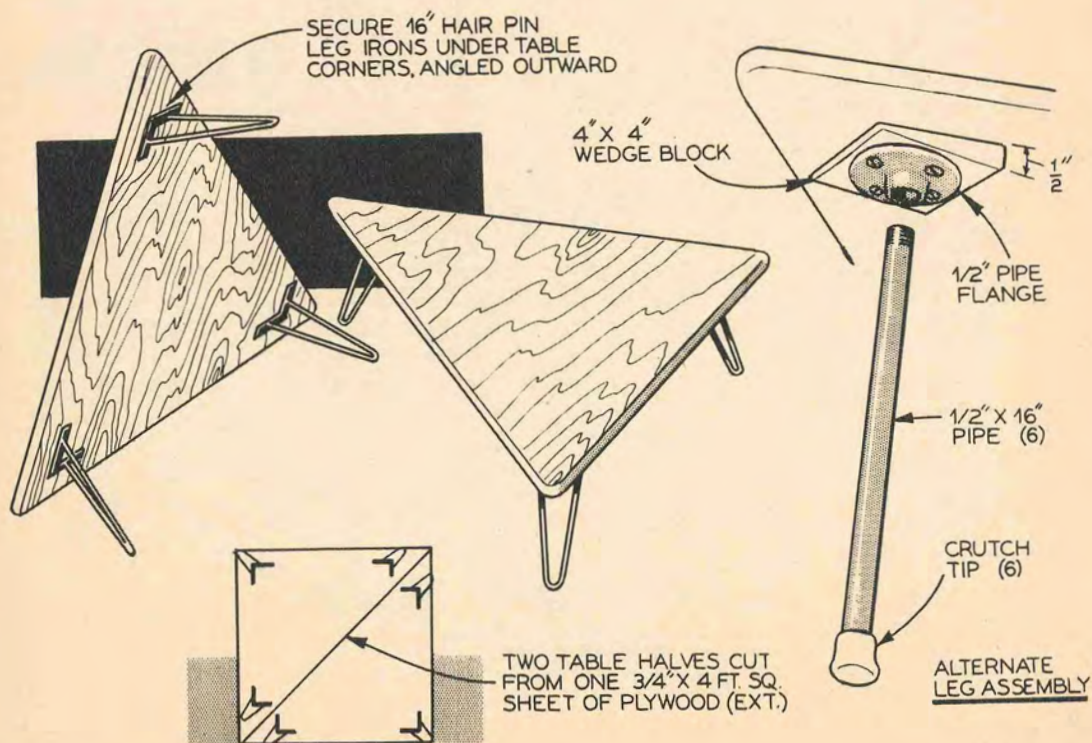
Use extension wood bit at SLOW, scrap below work and setup shown for glass rack. Don't loosen clamps for each hole; rip fence aligns all holes perfectly.

See following pages for additional details of construction.

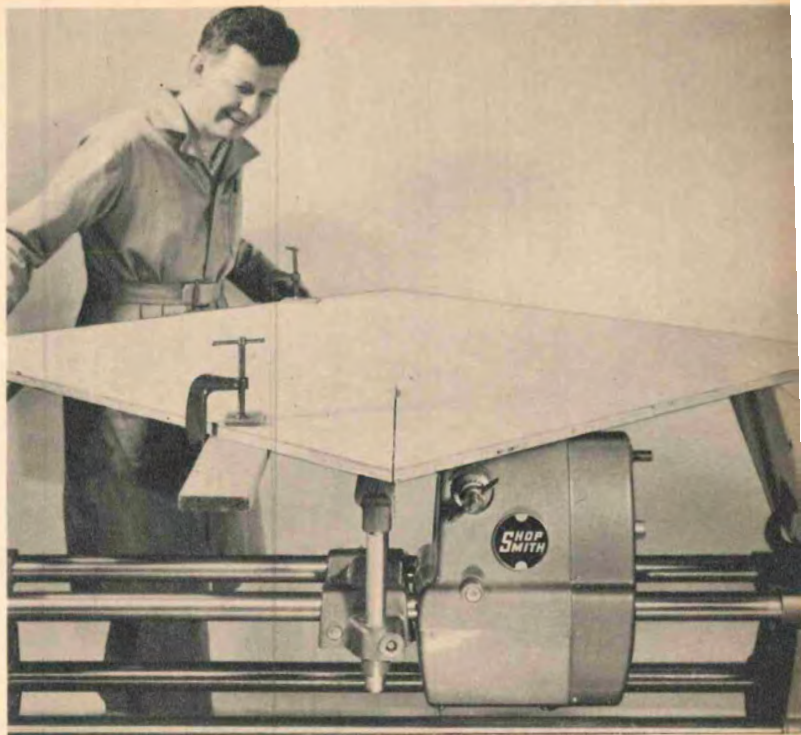




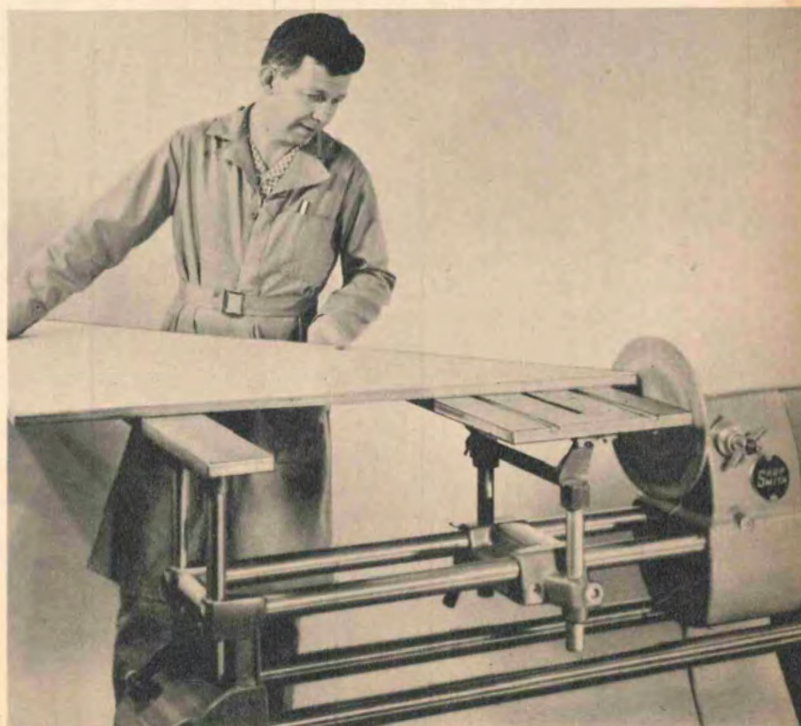
For wood wheels (two $\frac{3}{4}$ " scraps, glued and nailed), mount on faceplate, cut shallow grooves in sides; prevents splintering of outer veneers in cutting them down to size.



In cutting tables, board below acts as rip fence against saw table's side. Second extension table is merely piece of plywood that has been clamped on tailstock of turning lathe.



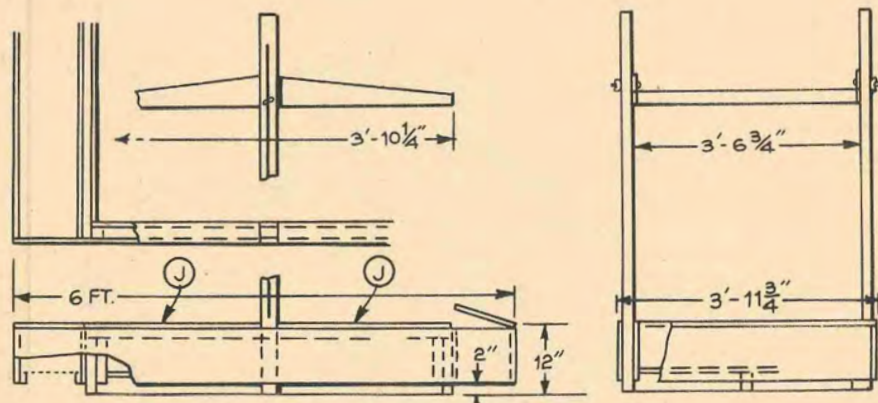
Round off sharp corners of the tables on your 12" disc sander.





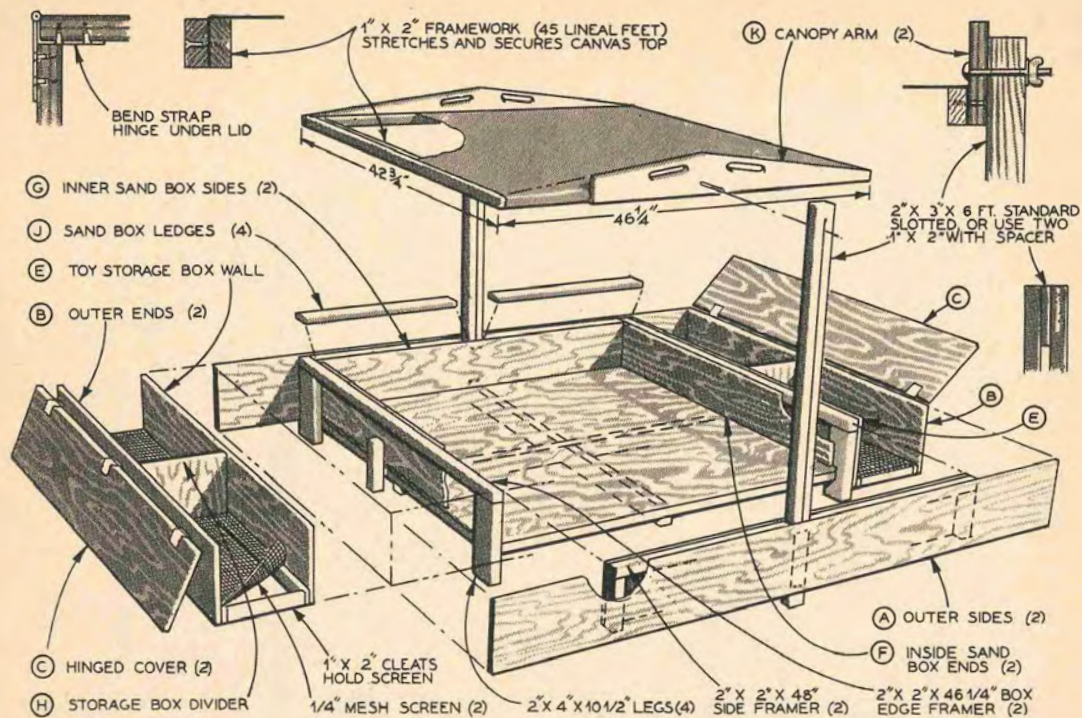
TOY STORAGE SANDBOX

There'll be no more sandy trails over newly polished floors when toys are kept in the capacious storage chests at each end of this easy-to-build sandbox.

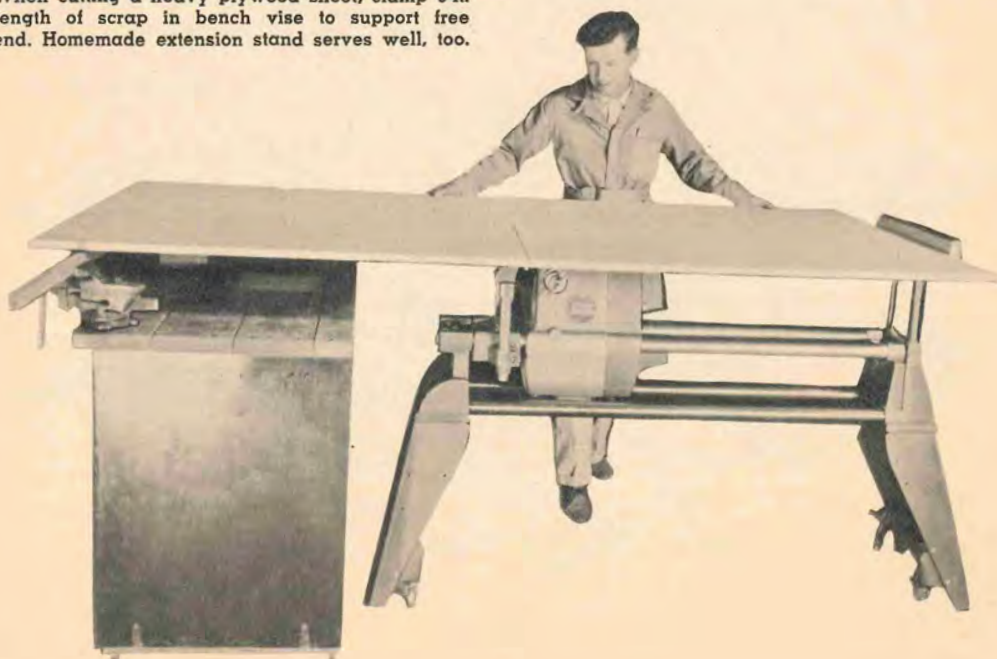


AMONG pre-schoolers, a sandbox is invariably the favorite back-yard play center. It is also the gathering point of their toys. This design features toy storage chests at each end—so that sand-covered toys need not be brought into the house each evening—and screen bottoms that will keep the toys dry outdoors. Also, this sand-

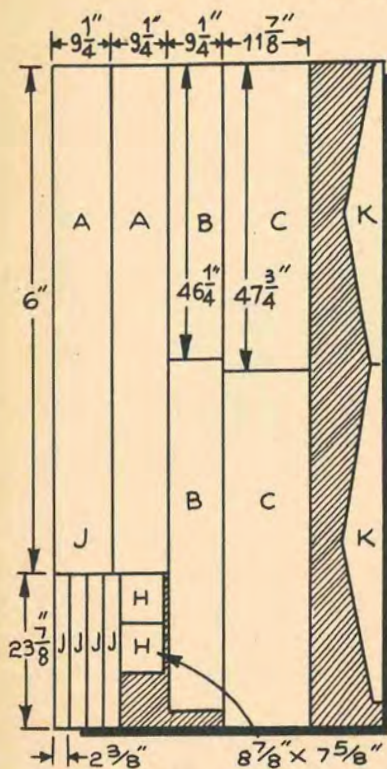
box is of generous size; several children can use it at the same time. Its canopy supports will slip out of the box frame, for easy removal of the canopy when desired. And it features strength. The large box will withstand a full load of sand, as well as romping feet and the canopy will withstand any tug-of-war!



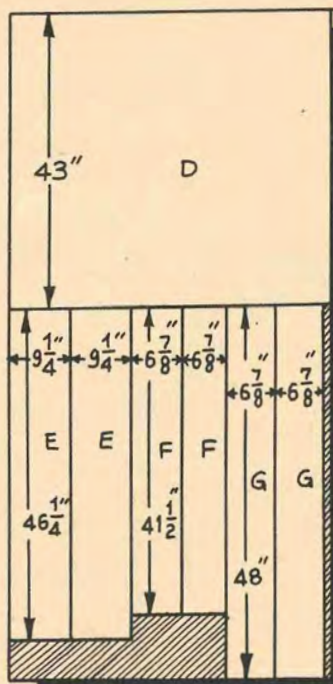
When cutting a heavy plywood sheet, clamp 6-ft. length of scrap in bench vise to support free end. Homemade extension stand serves well, too.



CUTTING SCHEDULE

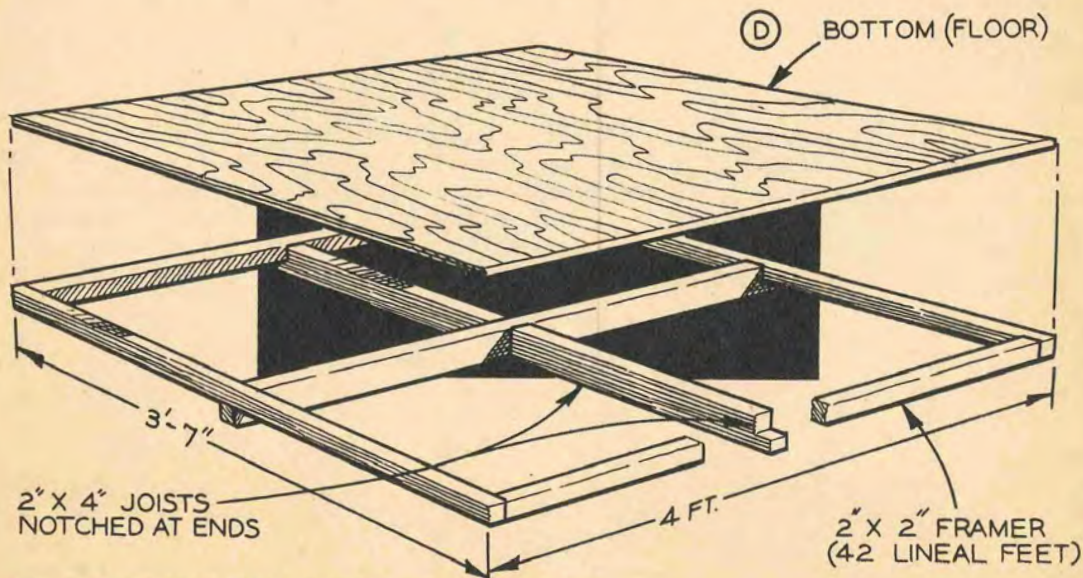


3/4" X 4 FT. X 8 FT. EXTERIOR A-C FIR PLYWOOD

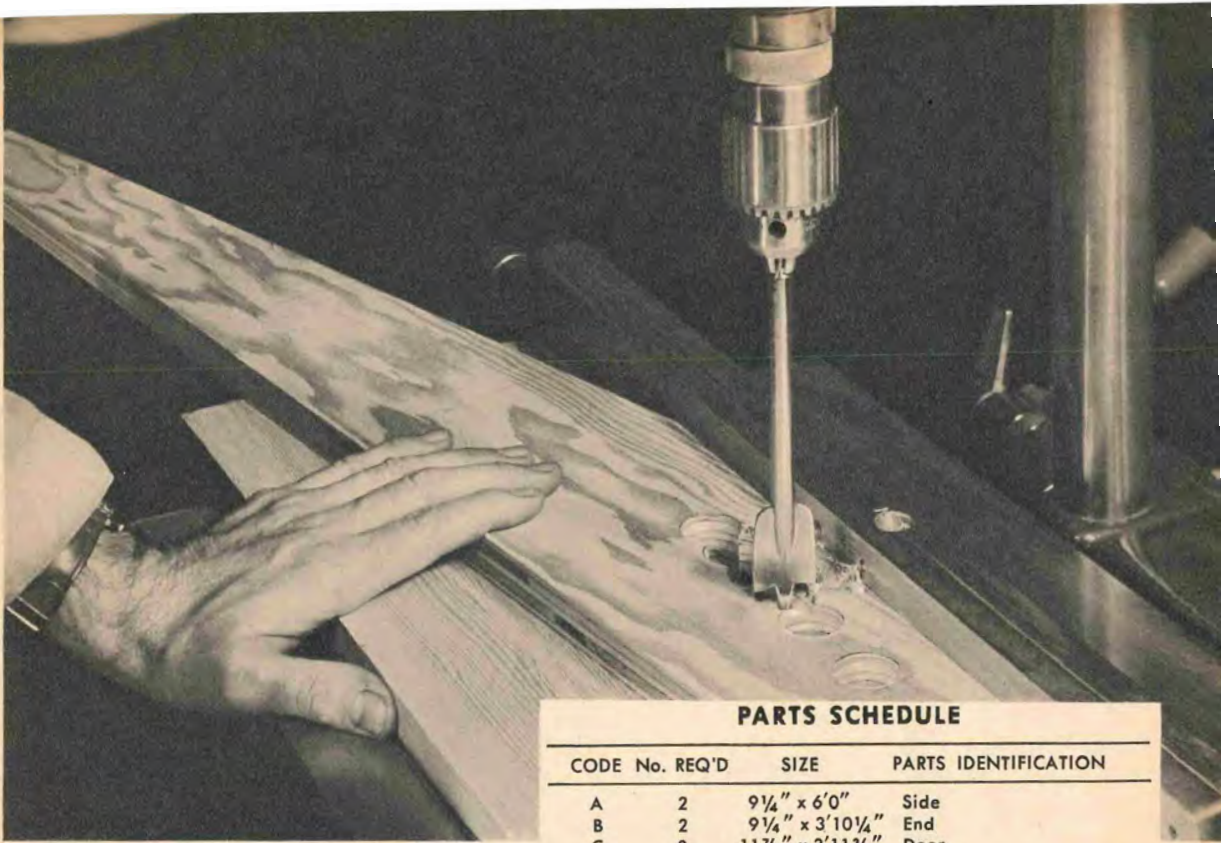


1 1/4" X 6"
HAND GRIPS

CANOPY ARM



FLOOR FRAME ASSEMBLY (MADE FIRST)



Cut handholds in cover arm with 1-in. bit, finishing with fine wood rasp, or cut 1-in. holes at ends and finish with router bit. Here, rip fence as backrest eliminates need of clamping.

PARTS SCHEDULE

CODE	No.	REQ'D	SIZE	PARTS IDENTIFICATION
A	2		9 1/4" x 6'0"	Side
B	2		9 1/4" x 3'10 1/4"	End
C	2		11 7/8" x 3'11 3/4"	Door
D	1		4'0" x 3'7"	Bottom
E	2		9 1/4" x 3'10 1/4"	Side — toy storage
F	2		6 7/8" x 3'5 1/2"	End — sand box
G	2		6 7/8" x 4'0"	Side — sand box
H	2		8 7/8" x 7 5/8"	Divider — toy storage
J	4		2 3/8" x 1'11 7/8"	Trim — sand box
K	2		See det. "A"	Canopy arm
<hr/>				
	6 ea.		—	Strap hinges
	2 ea.		3/8" Φ	Carriage bolts
	2 ea.		—	Washers & wing nuts
	8 sq. ft.		1/4" x 1/4"	Wire screen
	12 lin. ft.		2" x 4"	Framing
	42 lin. ft.		2" x 2"	
	45 lin. ft.		1" x 2"	Canopy & toy storage frame
	12 lin. ft.		2" x 3"	Canopy support
<hr/>				
Miscellaneous — waterproof glue				
4d & 6d galvanized finishing nails				

You will note from the cutting schedule that all plywood parts can be obtained from two 4 x 8 ft. panels of 3/4-in. exterior fir plywood. You build the bottom frame of 2 x 4s and 2 x 2s first, and then cover it with the plywood floor (D). Next, attach the four 2 x 4 legs and their 2 x 2 crosspieces to the two ends of the box. The inner box sides (F) are next attached, and then the sides (G). The side frames of 2 x 2s that hold the canopy supports are now attached, followed by the toy chest assemblies at each end. The sturdy 1/4-in. mesh galvanized screen used for the chest bottoms is also called hardware cloth. Outer sides (A), chest

lids (C) and trim (J) complete the sand-box proper.

The canopy consists of an inner 1 x 2 frame, to which the canvas is attached by tacks, and an outer frame of the two sides (K) and two 1 x 2 end pieces. By using screws to secure these two frames together, the canvas can easily be replaced. The 1/2-in. slots in the 2 x 3 canopy supports can be cut with a 1/2-in. router bit in the drill press or can be cut on the table saw, finishing the ends with a chisel. Or you can build each support of two 1 1/8 x 1 5/8 x 72 in. pieces (ripped on the table saw), with 1/2-in. spacer blocks between. •

MODERN LAMPS FROM THE NEW ALUMINUM

You can fashion beautiful lamps of Reynolds aluminum to rival the finest custom-made products.

Right. Legs and center post are of $\frac{3}{4}$ " aluminum tubing, painted dull black. Table top is birch plywood; shade and fixture are from dime store.

As you have probably noticed, anything different in a modern lamp for your home has a terrific price tag attached to it. A large number of the custom lamps are simple designs of metal—the simpler, the higher the price, it seems. But there is one encouraging thing. Using the new Reynolds aluminum, you can fashion your own.

The five lamps shown here are just examples—far from all you can build. Any of these may be changed in various ways and you can devise many others along similar lines. It is hoped these examples will give you ideas on how to construct modern lamps of the aluminum and how to make their fixtures from inexpensive sockets and shades available at the dime store. If you have already tried it, you know that the aluminum specified is of a different soft alloy that can be cut on power woodworking tools, almost as if it were wood. Flat bars of it are easily fashioned into various shapes and the tubings are bent without the need of pipe benders or the like. Though softer than any other metal generally available, the aluminum alloy has ample strength for most uses. There is one thing to remember. Metal

chips fly farther than sawdust. Wear goggles whenever cutting a piece on your table saw.

Occasional Lamp-Table

The occasional lamp-table shown in Photo No. 1 is a popular modern lamp that gives both a good reading light and a convenient table alongside the davenport, lounge or chair. You can use any of a multitude of different lampshades on this design and, yes, good shades are available today in many dime stores. Depending on the shade chosen, the lamp-table can present anything from conventional to ultra-modern trend.

Construction of the table is simple. Two leg construction methods are shown. For the first, you cut a 6-ft. length of the $\frac{3}{4}$ -in. outside diameter Reynolds tubing to three 24 in. lengths on your power saw or jigsaw. Flatten 3 inches of a leg in your vise and bend to a slant of approximately 12 degrees, as shown in Fig. 1. Use the first leg as a model to bend all three the same. Drill two holes in each leg for $\frac{3}{4}$ -in. screws that go into the bottom of the table top.

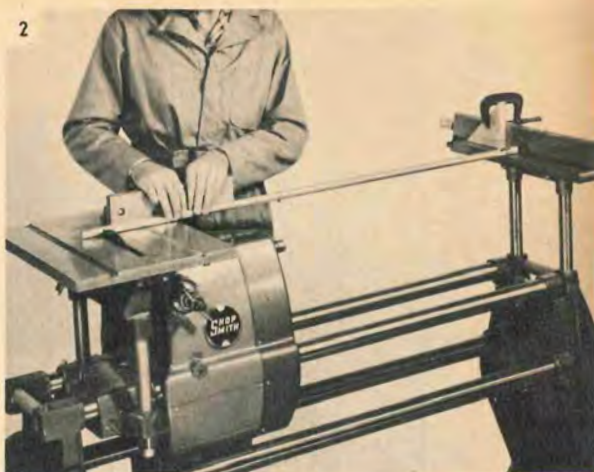


The alternate leg requires a bit more time but is the stronger. For it, the three legs are cut to 21-in. length on the table saw, cutting the upper ends with the miter gauge set at a 12-degree slant. As a $\frac{5}{8}$ -in. hardwood dowel is a perfect fit inside this tubing, these legs are secured by 3-in. lengths of the dowel set in the underside of the table top and through $\frac{1}{2}$ x2x2 in. glued reinforcing blocks. Glue the dowels and blocks to the table top; then glue the legs to the dowels. With either type of leg, drill a $\frac{3}{8}$ -in. hole in one leg near the top and bottom, as shown in Fig. 1, so that the lamp cord can pass through the leg and be hidden. An auger bit works as well as a twist drill for holes in the soft metal.

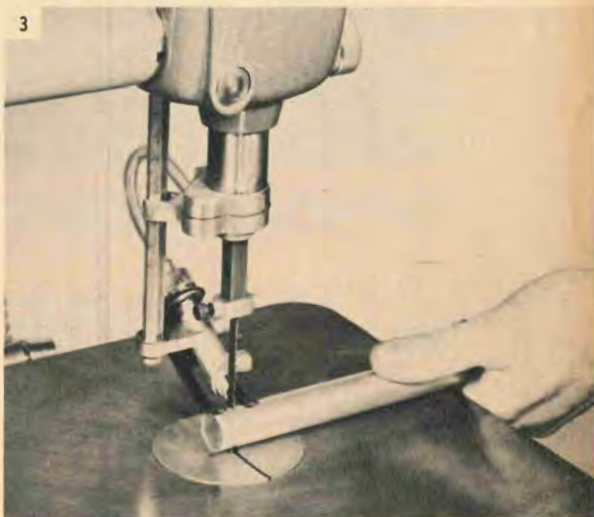
The table top is pivot-turned from an 18-in. square of hardwood plywood on the 12-in. disc sander. Any hardwood plywood can be used and the $\frac{3}{4}$ -in. plywoods with a hard-plastic countertop surface bonded to the top side are also something to consider. They require only edge finishing and will not gather stains or glass rings. With the table saw or jigsaw attachment, first rough-cut the turning and then pivot it on a nail or screw through a small center hole and into a scrap block clamped to the saw table. Advance the quill feed to the work and use a coarse paper on the disc. By making a light final cut, no fine sandpaper is needed. Before making the smoothing cut, it is a good idea to fill any veneer voids in the plywood edge with wood putty or spackle. Drill a $\frac{5}{8}$ -in. hole in the center of the completed disc for the fixture pipe. Finish the top of the table natural with lacquer or varnish and, while doing so, give the turned edge at least one sealer coat. When painting the aluminum legs and upper post dull black, finish the table edge the same. This will eliminate showing the plywood veneers as would occur with a clear finish.

The upper post of the lamp is a 20-in. length of the same $\frac{3}{4}$ -in. aluminum tubing. A 21 $\frac{1}{2}$ -in. length of $\frac{1}{8}$ -in. pipe goes inside the tubing to secure the light fixture and post to the table top. This is standard $\frac{1}{8}$ -in. iron pipe, available in some plumbing shops and at any light fixture store; it fits all standard light sockets and the electric fixture nuts used with same. At the light fixture store or dime store, obtain a shade bracket and ordinary light socket, as shown in Photo No. 5. You can also use one of the so-called "conversion" sockets, a similar socket that has an attached shade bracket and which holds the compact three-way 50-100-150 watt bulbs. These are also obtainable at dime stores.

To assemble, wire a length of zip-type



Stop block on rip fence gives same-length legs. Use smallest-toothed blade. Wear safety goggles.



Above. Jigsaw also cuts the aluminum well and doesn't throw chips. Use a fine-toothed blade.

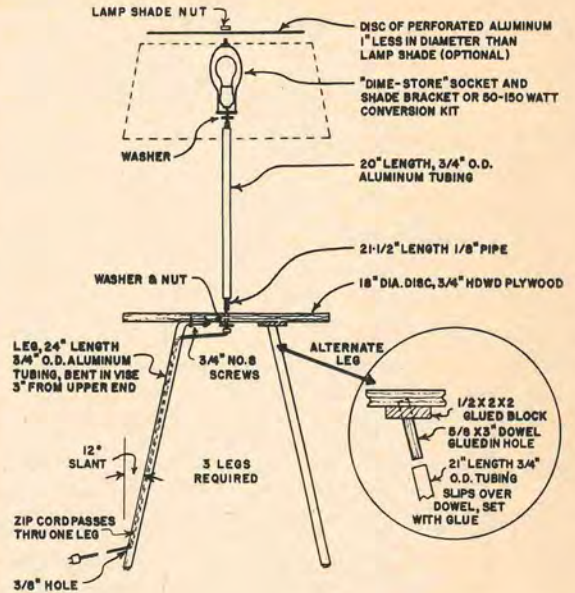
Below. Any size plywood tables or shelves can be turned on disc sander of the multi-purpose tool.





A dime store socket and shade bracket provide a good light fixture for the occasional lamp-table.

FIGURE 1



lamp cord to the socket, pass the wire through the shade bracket and washer and then down through the $\frac{1}{8}$ -in. pipe and its washer and nut at the bottom. Screw the socket to the upper end of the pipe and lock with the small set screw on the socket. Anchor the entire fixture to the table by tightening the nut at the bottom of the pipe. To ease centering of the pipe inside the aluminum post, you can wrap several thicknesses of friction tape around the pipe near the upper and lower ends.

The lamp cord is then pushed through the one leg prepared for it. If available, obtain one of the tiny hard rubber bushings made to fit in the end of a light socket and push it into the lower $\frac{3}{8}$ -in. hole of the leg—where flexing of the cord occurs and may wear the insulation in time. Otherwise, protect the cord there with a small wrapping of black plastic electrician's tape. Details of painting the metal parts dull black and of finishing the leg ends are given in the text following. Also note the reflector disc described—if you have chosen a lamp shade with a wide upper opening, a disc cut to fit will improve its reading light.

Reflector Discs

You will note that a disc of perforated aluminum is shown for the top of the shade on the occasional lamp-table and also on some other lamps herein. Making such a disc is shown in Photo No. 16. This disc is optional—when you choose a lamp shade that has a wide upper opening, the disc will help considerably by reflecting additional light downward for reading. In other words, the reflector disc is a simple way of reflecting more light downward—the modern trend. The indirect lamps of the past fifteen years, bouncing all light off the ceiling, have proved dubious for reading and almost worthless on today's wood-paneled and slanting ceilings. The Do-It-Yourself aluminum has just recently been made available in the perforated sheet shown in Photo No. 16. Simply cut a piece to shape, about an inch less in diameter than the lampshade opening, with tin snips or ordinary scissors. Drill a $\frac{1}{4}$ -in. hole in its center to fit the stud bolt on the shade bracket. The disc may be left plain, or satin-finished on a wire wheel—do not paint. It lies on top of the shade frame and

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Above. You'll find it very easy to obtain a satin finish on the new aluminum with a soft wire wheel.

Right. The light socket and gooseneck screw together to assemble the "dog-tired" lamp shade.

is held by the shade bracket nut. Do not use a solid piece of aluminum sheet—a solid disc may imprison enough of the bulb's heat to scorch or burn your lamp shade.

Finishing the Aluminum

To paint the aluminum parts of any lamp dull black in the modern manner, first clean the metal well with steel wool or paint thinner. Avoid excess handling because the skin's natural oils can prevent a good paint bond on metal. Lacquering or enameling before assembling the parts is usually more convenient. A brush does nearly as well as a spray gun on this work, because any slight run or other paint defect does not cast reflections on the dull-black finish. If brush-lacquering, a photographer's touch-up lacquer, obtainable at camera stores, is excellent. It gives a true dull black finish to the job and dries in minutes.

The occasional lamp-table is best finished dull black, to have its table edge the same. On others, you may prefer an aluminum satin-finish. Simply use a soft wire wheel on your multi-purpose tool as shown

FIGURE 2

FOUR METHODS—FINISHING 3/4" LEGS



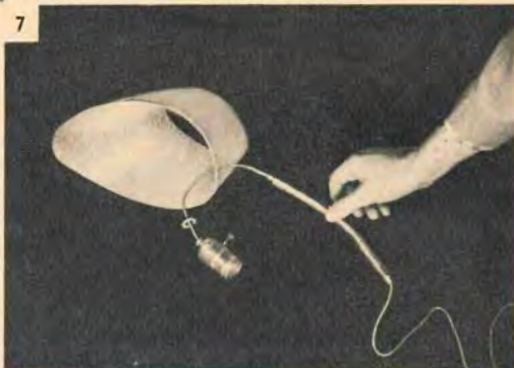
1. PLUG OF WOOD PUTTY, END ROUNDED WHEN DRY.

2. GLUED 2" LENGTH 5/8" DOWEL WITH 3/4" FURN. GLIDE OR RUBBER BUMPER TACK NAILED TO BOTTOM.

3. NEW REYNOLDS SCREW—SPRING END.

4. 3/4" RUBBER CRUTCH TIP SLIPPED OVER END.

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in Photo No. 6, buffing before assembling the parts. Wear goggles, as wire from the wheel may fly. Coat the finished parts with a hard auto wax to prevent tarnishing.

Finishing Leg Ends

Four methods of finishing the lower ends of lamp legs made from the 3/4-in. aluminum tubing are shown in Fig. 2. For the first method, score the inside of the tubing with a screwdriver to roughen it, then use the screwdriver to press wood dough firmly against the roughened inner sides, as shown in Photo No. 10. Some craftsmen place the filled end of the tubing in a warm oven or near a heat lamp to dry the wood dough quickly. The heat also seems to expand the wood dough, giving a greater bulge at the bottom. The third method shown in Fig. 2 uses a patented furniture glide recently developed by Reynolds that simply snaps into the end of the tubing.

"Dog-Tired" Desk Lamp

The "dog-tired" lamp of Fig. 3 is a good example of modern speciality lamps you



Cut slots for "dog's" rear legs as shown above, or use four blades placed together in the jigsaw.

Drill all (front legs, tubing and $\frac{3}{8}$ " pipe nipple) at once for the rivet hole. The twist drill is used here.



FIGURE 3
"DOG-TIRED" DESK LAMP



can fashion from the aluminum tubing and bar. As shown in Fig. 4, it can also be a wall lamp above the desk or elsewhere. This desk lamp utilizes a short flexible-fixture, gooseneck pipe. These have become very popular for various lamps and ceiling lights and are available in most light fixture stores in any length desired.

The shade of the desk lamp is fashioned from a 13-in. square of the embossed Reynolds aluminum sheet, which is a flat sheet with highly textured surface. On a piece of paper marked out in 1-in. squares, draw a full-size pattern of the lamp shade, Fig. 6, and transfer it to the aluminum sheet with carbon paper. The exact shape is not important but uniformity is, so fold your paper pattern in half after drawing one side and trace the other side the same through the folded sheet. Cut the aluminum with tinsnips or ordinary scissors and use two small aluminum rivets to secure the ends together. Give the joint a $\frac{5}{8}$ -in. lap and peen the rivet heads lightly to make them indiscernible on the embossed surface. After riveting, drill a $\frac{1}{4}$ -in. hole through the middle of the lap for the light socket and enlarge the hole with a pocket knife to fit snugly over the $\frac{1}{8}$ -in. pipe end of the gooseneck.

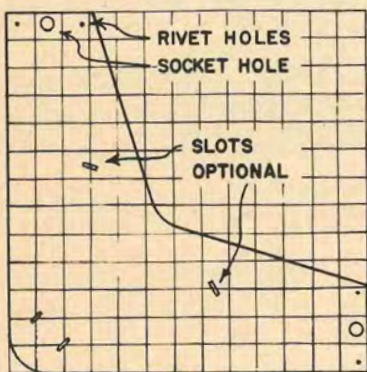
If desired, you can add an oval of the perforated aluminum sheeting of Photo No. 16 to the top of the lamp, as shown in Fig. 7. This will reflect more light downward and is secured by 5 or 6 small aluminum rivets through the sides of the shade. The optional slots to simulate eyes and nose are started with a twist drill and finished with a pocket knife or file.

The dog's "body" is formed of an 11-in. length of $\frac{3}{4}$ -in. outside diameter aluminum tubing and a 22-in. and a 14-in. length of $\frac{1}{8} \times \frac{3}{4}$ -in. Reynolds aluminum bar. The aluminum bar is easy to bend to most any shape; therefore you can ease the drilling of the rivet hole through the front "legs" by drilling through the legs, tubing and $\frac{3}{8}$ -in. pipe nipple all at once, as shown in Photo No. 9. And now bend the front legs to final shape. Details of the pipe nipple used to connect the gooseneck to the body are given in Fig. 8. Bend the rear legs to the shape desired, before assembly, from the 14-in. length of bar, and secure these in a slot in the bottom of the tubing by one sheet metal or aluminum self-tapping screw, Fig. 5. Cut this $\frac{1}{8}$ -in. wide slot 1 in. deep on the table saw, backing the tubing up with a scrap block of wood, Photo No. 8, or cut it on the jigsaw with a wide blade made of four jigsaw blades inserted together. After slotting, saw the end of the tubing at a 30-degree angle and drill a

FIGURE 4



FIGURE 6



SHADE PATTERN - 1" SQUARES
(CUT WITH SCISSORS FROM EMBOSSED ALUMINUM)

$\frac{3}{8}$ -in. hole approximately two inches up from the bottom end of the body for the lamp cord to enter.

The dog's body can be painted dull black or buffed to satin finish on a wire wheel. The gooseneck is best obtained in a silvery finish, 6 or 8 in. long. The embossed shade can be left natural or it can be given a coat of any color enamel or lacquer. When the paint is dry, remove it from all but the grooves with steel wool, obtaining a two-tone finish.

The simple wiring assembly is shown in Photo No. 7. The zip cord is connected to the light socket first, then passed through the washer, shade and gooseneck pipe. Screwing the socket to the gooseneck assembles these parts. Slide the zip cord

FIGURE 5

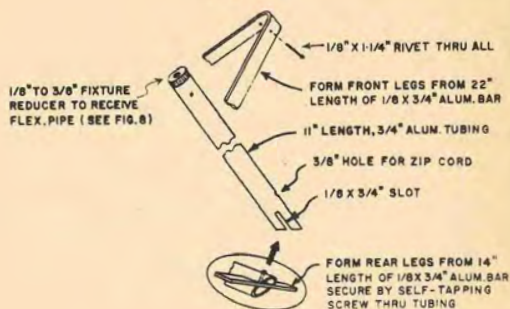
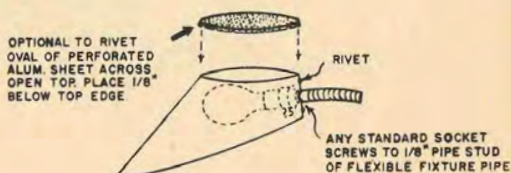


FIGURE 7

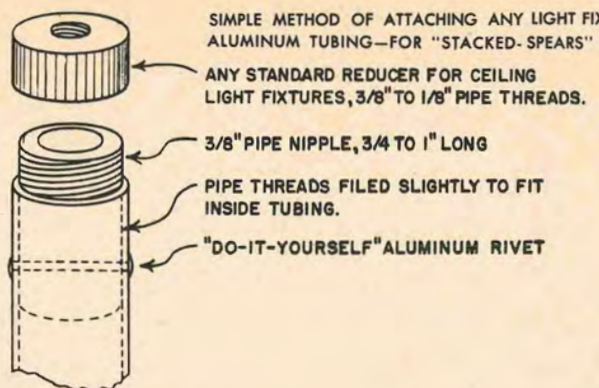


down the dog's body (there is ample room for it to pass by the rivet in the $\frac{3}{8}$ -in. pipe nipple) and out the $\frac{3}{8}$ -in. hole near the bottom. Screwing the gooseneck to the fixture reducer on the $\frac{3}{8}$ -in. pipe completes the assembly.

Attaching Lamps to Tubing

Figure 8 gives a simple way to attach the gooseneck of the above lamp to the tubing body. The same method is used to attach the spot lamps of the following floor lamp. At any hardware, plumbing or light fixture store, obtain an ordinary "closeup" $\frac{3}{8}$ -in. pipe nipple, which is from $\frac{3}{4}$ - to 1-in. long and threaded overall. File the threads of the nipple slightly so that it can slip inside

FIGURE 8



You can round the tubing ends by filling with wood dough and sanding them smooth when dry.

the end of the $3/4$ -in. aluminum tubing. With $3/16$ in. of the nipple extending out of the tubing, drill a $1/8$ -in. hole through both on the drill press and peen an aluminum rivet in place. A standard brass or aluminum reducer for ceiling light fixtures is obtained from a light fixture store and screwed to the end of the nipple. As it reduces from $3/8$ to $1/8$ in. (pipe threads), the end of the tubing will now accept any standard light fixture.

"Stacked Spears" Floor Lamp

The modern floor lamp of Fig. 9 utilizes the spot type of lamp shade to fullest advantage. The spots are high enough so that a person reading nearby is not subjected to a hot, closeup glare. One or more of the spots can be tilted toward the ceiling or to accentuate a wall decoration; others can tilt downward for reading.

The main needs here are three lengths of the $3/4$ -in. o.d. Reynolds aluminum tubing and three of the inexpensive wall-mount spot lamps that are available today in nearly all dime stores. If you intend to finish the spears dull black, obtain the



One rivet secures pipe nipple in tubing. With fixture reducer, tubing takes any standard fixture.

spots in black lacquer or brass finish. If the spears are to be satin-finished aluminum, you can find matching spots with spun-aluminum finish. Choose spots with switches on their backs or sides—not on their wall mounts.

First, turn a 15-in. ring of $3/4$ -in. plywood on the lathe for the lamp base, Fig. 10. As the base can be painted dull black, whether the spears are black or satin, this can be of ordinary fir plywood. Glue a square or disc of scrap $1/4$ -in. plywood of 11 to 14-in. diameter to the back side of the $3/4$ -in. plywood. Sandwich a sheet of newspaper in the glue layer to ease separating the two later on. Secure a 6-in. lathe faceplate to the $1/4$ -in. backing side with three $3/4$ -in. long screws and first turn the 15-in. outer edge of the ring. With the tool rest moved to the face of the turning, cut the inner edge of the ring, removing enough of the waste center to have room to work on the edge and to prevent burning the lathe chisel. When through the $3/4$ -in. plywood, smooth up its inner edge and then fill any veneer voids in both the inner and outer edges with wood dough or spackle. When dry, finish

Right. The base ring is easily turned from ordinary fir plywood, filled and painted dull black.

these edges with sandpaper while still on the lathe. Next, remove and break the ring from its backing with a mallet and chisel—the newspaper will separate. Remove any excess glue from the ring with your 12-in. disc sander. Drill the three $\frac{3}{4}$ -in. leg holes on the vertical drill press. Set the drill press table at $8\frac{1}{2}$ -degrees tilt and drill from the bottom side of the ring. Use a scrap block below and an auger bit to prevent splintering the ends of the holes.

The alternate base of Fig. 11 is not turned, is best cut on the accessory jigsaw, finished on the drum and disc sanders. Another interesting base for this lamp is made of three layers of $\frac{1}{4}$ -in. hardboard, each cut to the same shape as the above alternate. The three layers are glued together and are clamped down to a bench top with a $1\frac{1}{2}$ -in. thick disc of scrap wood, 7 in. in diameter, under their middle. When the glue sets and the clamps are removed, the layered triangle will retain most of the upward bulge formed in its middle, giving an unusual surrealist effect.

The assembly of the spears is quite simple to do if you follow the steps shown in Fig. 12. First, cut the three lengths of $\frac{3}{4}$ -in. tubing to the dimensions given. In each, drill a $\frac{3}{8}$ -in. hole through one side 45 inches up. Remove any burrs from these holes with a pocket knife. Rivet a short $\frac{3}{8}$ -in. pipe nipple in the upper end of each spear, as shown in Fig. 8. Finish the spears at this time, by painting or lacquering them dull black or buffing to a satin finish on a wire wheel.

Next, splice two extra lengths of zip cord (a 24-in. and 16-in. length) to a 10-ft. length of the cord about 36 in. from its end. Splice by soldering and taping with plastic electrician's tape or with two screw-on fasteners. Slide all three wires up through the longest spear from the bottom, and as the ends of the two spliced pieces appear at the $\frac{3}{8}$ -in. hole, pull them out and slide them into the $\frac{3}{8}$ -in. holes of the other two spears and up out of their ends. Now, stack the three spears together in a triangle shape with their wired holes facing each other in the middle. Secure them together with a 3-in. wrapping of scotch or friction tape.

The spears can now be attached to the base, spreading out their lower ends to insert in the holes in the plywood ring. Glue the spears in these holes and further secure them by one 8d finish nail through

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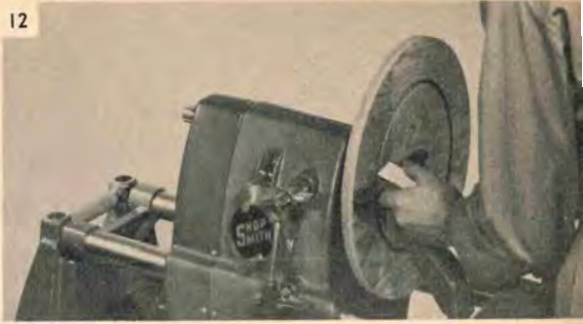
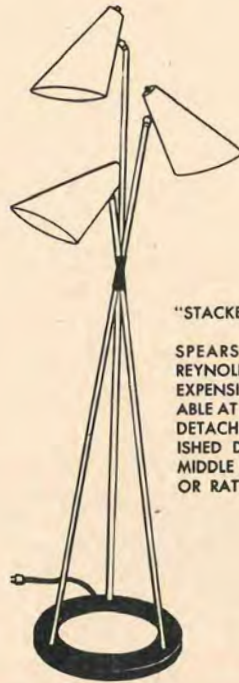


FIGURE 9



"STACKED-SPEARS" FLOOR LAMP

SPEARS ARE 3 LENGTHS OF $\frac{3}{4}$ " O.D. REYNOLDS TUBING. LAMPS ARE THREE INEXPENSIVE WALL-MOUNT SPOTS (AVAILABLE AT DIME STORES) WITH WALL FLANGES DETACHED. BASE IS OF $\frac{3}{4}$ " PLYWOOD, FINISHED DULL BLACK. SPEARS SECURED AT MIDDLE BY 3" WHIPPING OF PLASTIC CORD OR RATTAN.

On spots, universal joint's threaded end is $\frac{1}{8}$ " pipe thread; fits the reducer on end of "spear."

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FIGURE 10
BASE DETAILS

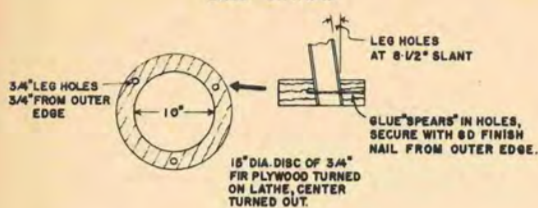


FIG. 11

ALTERNATE BASE OF $\frac{3}{4}$ " HARDWOOD OR HARDWOOD PLYWOOD, SIDES STRAIGHT OR DISHED SLIGHTLY WITH DRUM SANDER.

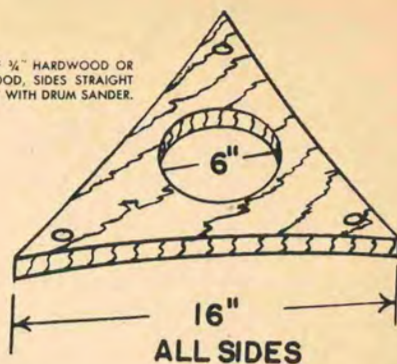
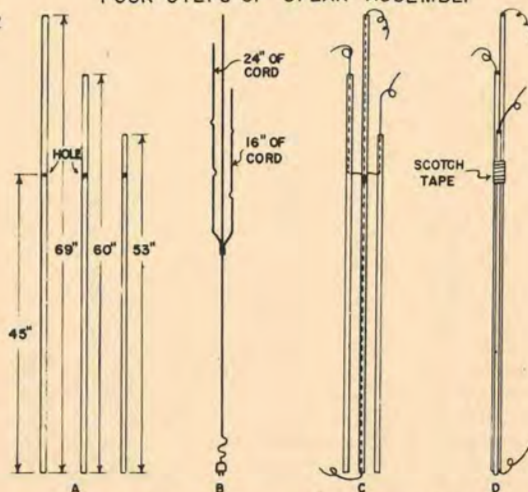


FIGURE 12
FOUR STEPS OF "SPEAR" ASSEMBLY



A—CUT 3 LENGTHS OF $\frac{3}{4}$ " A.D. ALUMINUM TUBING. DRILL $\frac{3}{8}$ " HOLE THRU ONE SIDE OF EACH. ALSO RIVET PIPE BUSHING OF FIG. 8 IN UPPER ENDS. B—SPlice TWO EXTRA LENGTHS TO A ZIP CORD 36" FROM END. C—SLIDE ALL CORDS THRU LONGEST TUBE, PULL SHORTER CORDS OUT HOLE AND UP THROUGH SHORTER TUBES. D—STACK ALL THREE IN TRIANGLE SHAPE, HOLES TOGETHER. SECURE WITH SCOTCH TAPE. AFTER ATTACHING TO BASE, UNPEEL TAPE AS WHIPPING IS APPLIED.

each from the outer edge, as shown in Fig. 10. Drill lead holes for these nails to prevent crimping the tubing. Nail four small rubber bumper tracks or furniture glides to the underside of the ring—to prevent wobbling on an uneven floor and to give clearance for the lamp cord extending out the bottom of one spear. Filling the three countersunk nail heads and painting the ring dull black completes the base.

The spears are whipped where they join at the middle. Use plastic cord, gimp, natural rattan or any other decorative cord. No special whipping is needed. Wrap back over the starting end and tuck the finish end of the cord under a few turns before cutting it off. Unpeel the temporary friction or scotch tape as the wrapping progresses

and make it about 4 in. in length. Cement the completed whipping in place with shellac or clear fingernail polish.

The three spots obtained from the dime store are now readied by unscrewing their universal joints from their saucer or bar-shaped wall brackets, which are discarded. As shown in Photo No. 13, these universal joints have the standard $\frac{1}{8}$ -in. pipe thread, which fits the brass or aluminum reducer shown in Fig. 8. Screw three reducers to the ends of the $\frac{3}{8}$ -in. pipe nipples on the spears. Trim off the zip cord to leave only about 7 in. extending from each spear and connect these to the lamp sockets through their universal joints. Push any excess cord back into the spears and screw the universal joints into the reducers. The

lamp is now finished except for a wall plug on the cord end and bulbs in the spots.

"Tepee" Floor Lamp

For the modern "tepee" floor lamp of Fig. 13, three "spears" pass through a circular shelf, giving somewhat the effect of the stacked-spears type but with a handy table for ash tray and books.

Reynolds $\frac{3}{4}$ -in. outside diameter aluminum tubing is used for the three spears and all are sawed to 46 in. in length. In one leg, a $\frac{3}{8}$ -in. hole is drilled about 2 in. from the bottom for the lamp cord to enter and be hidden.

The beverage tray or shelf, Fig. 16, is pivot-turned to 16 in. in diameter from $\frac{3}{4}$ -in. hardwood plywood or $\frac{3}{4}$ -in. plastic-topped plywood, as shown in Photo No. 4. The optional bevel on the edge of the tray is obtained by simply tilting the saw table 15 degrees when pivot-turning. Drill the three $\frac{3}{4}$ -in. holes in the disc for the spears on the vertical drill press. Center the holes $1\frac{1}{2}$ in. from the edge, use an auger bit and hold the work firmly down on a scrap block below, because the work is drilled bottom side up and you do not want splintered holes, which would show. Tilt the drill press table 12 degrees to obtain the correct slant on these holes.

The top block, Fig. 15, is turned on the lathe or pivot-turned on the disc sander. Its $\frac{3}{4}$ -in. thick disc should be of solid hardwood or hardwood plywood and has three $\frac{3}{4}$ -in. holes for the spears drilled completely through it. The shallow $\frac{3}{8}$ -in. center hole and groove to one leg give space for the washer and nut and for the lamp cord to pass over to the leg. The $\frac{1}{4}$ -in. thick upper disc is simply a plywood or hardboard disc with a $\frac{5}{8}$ -in. hole drilled through the center. You can turn or sand both discs at once by assembling them with the three wood screws used later to secure the two together.

Assemble legs, top block and beverage shelf at the same time, using glue on all joints and one 8d finish nail through each leg at the beverage shelf and a 6d nail through at the top block, as shown in Figs. 15 and 16. On the upper end of the leg the cord is to enter, slant the nail to miss the groove in the block. After the glue has set, crimp and bend over the inner edge of this leg with a pair of pliers so that the lamp cord can enter the leg from the groove.

A 50-100-150 watt "conversion" socket from the dime store is shown in Fig. 14 and gives the best lighting for this lamp. You can also use a standard light socket with

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The disc sander of the multi-purpose tool gives a machine-smooth finish to cut ends of aluminum.

FIGURE 13



"TEPEE" FLOOR LAMP

HERE THE THREE SPEARS PASS THROUGH A HARDWOOD PLYWOOD TRAY OR SHELF.

FIGURE 14

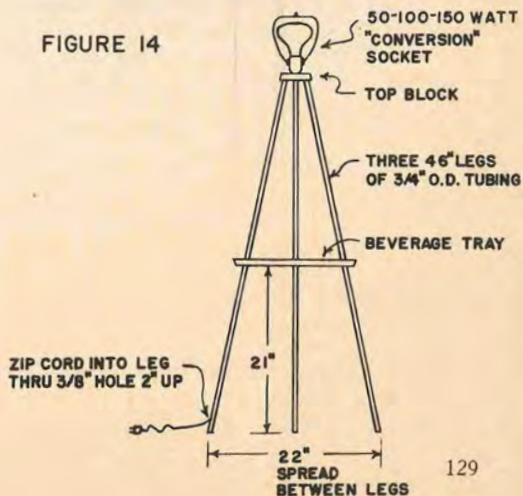


FIGURE 15

TOP BLOCK DETAILS

TUBING LEG GLUED INTO HOLE, SECURED BY 6D NAIL IN LEAD HOLE

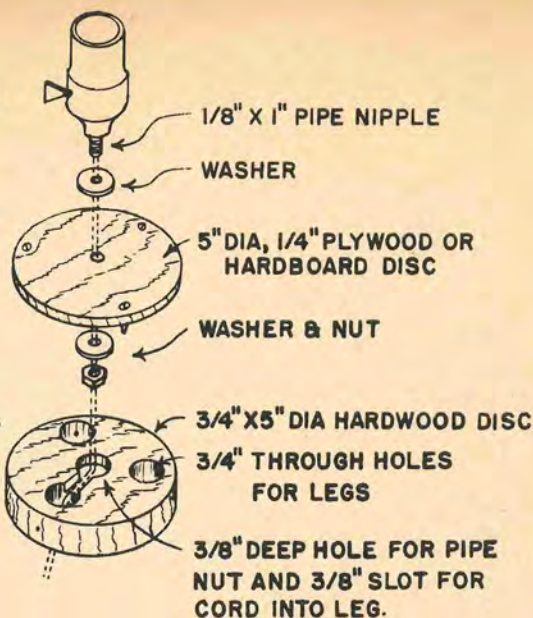
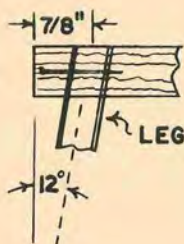
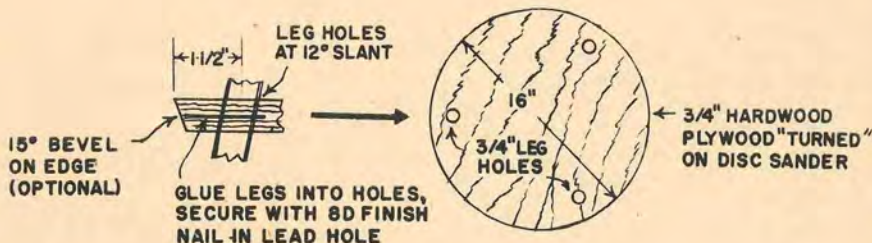


FIGURE 16

BEVERAGE TRAY



a shade bracket, as shown in Fig. 1. Either is simply screwed to a $\frac{1}{8}$ -in. pipe nipple, 1 in. long, which passes through the washers and the $\frac{1}{4}$ -in. plywood disc, Fig. 15, to be secured by a $\frac{1}{8}$ -in. fixture nut underneath. The lamp cord, preferably zip type, is connected to the socket, passed through the $\frac{1}{8}$ -in. pipe and down the one leg before securing the $\frac{1}{4}$ -in. plywood disc to the $\frac{3}{4}$ -in. disc with the three wood screws.

The aluminum legs can be satin-finished with a wire brush or painted dull black. The beverage tray is best finished natural and its edges painted either dull black to match the black spears or a brown to blend with its top. Paint edges last, to prevent any coloring from creeping onto the natural top. Paint, black or brown, is better than stain, which will darken and accent some

of the plywood layers of the edge, rather than subdue them.

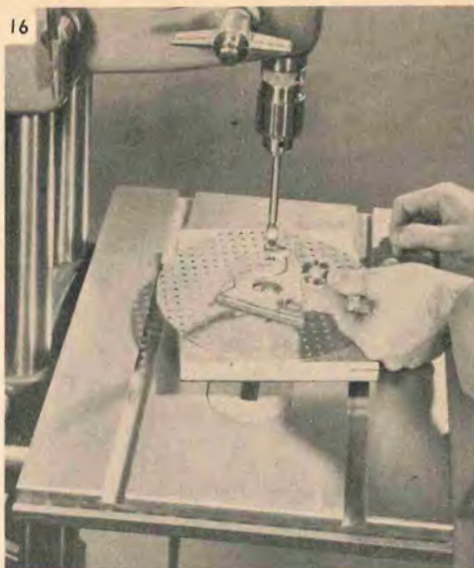
The best shade for this modern floor lamp is one of a cone-shaped design. If its top opening is more than ten inches in diameter, a reflector disc cut from perforated aluminum will help in reflecting more light downward.

"Pull-Up" Wall Lamp

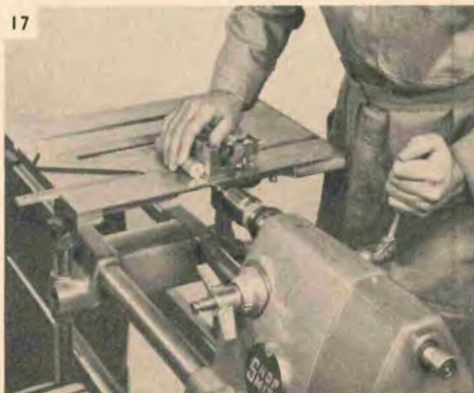
The pull-up lamp of Fig. 17 is of a new type that is becoming very popular in modern homes. No special fixtures are required for this version, yet the lamp will swing from side to side on its overhead arm and can be moved up or down by a slight pull on either the knob underneath the lamp or the counterweight on the wall. The overhead arm can be locked in any



Above. Utilize the rip fence and tilting table to center lamp cord and holes in aluminum legs.



Above right. Cut large holes in perforated or other aluminum sheets with ordinary wood expansion bit, sandwiching metal between wood scraps.



It's easiest to bore counterweight plugs of pull-up lamp after they are in tubing, as shown right.

position or given slight friction so not to move in a draft.

The overhead arm is bent to the shape shown in Fig. 20. Because you cannot easily bend to the very end of tubing, use a 36-in. length of $\frac{3}{4}$ -in. aluminum tubing here and cut the excess off after bending. Roughly turn a piece of $\frac{3}{4}$ -in. thick scrap wood to an 8-in. disc on a faceplate on your lathe, giving it a pulley's round groove in the edge. Tamp the ends of the tubing in a bucket of wet sand to pack sand throughout its length and plug the ends with corks. Then simply secure the turning to a bench, block the end, and bend the tubing.

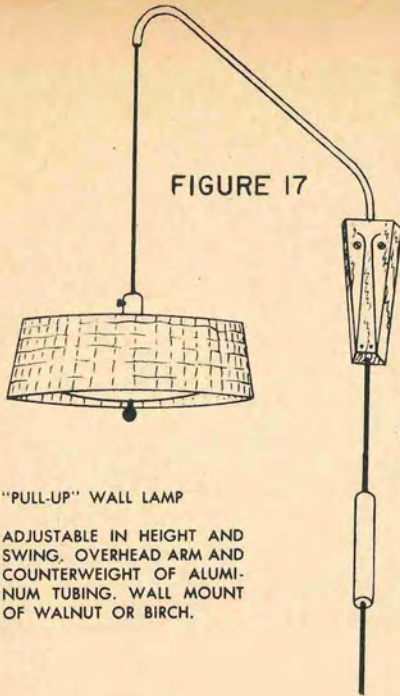
The wall mount is a $1\frac{3}{4} \times 3 \times 6$ -in. block of solid hardwood, cut as in Fig. 18. First, drill the $\frac{3}{4}$ -in. hole 4 in. deep on your horizontal drill press, using the locked miter gauge as a jig. Reverse the wood and drill

the $\frac{3}{8}$ -in. hole from the other end. Next, run the $1\frac{1}{2}$ -in.-deep saw cut across the top. With the overhead arm in the $\frac{3}{4}$ -in. hole, this saw cut allows you to tighten the two screws through the $\frac{1}{4}$ -in. holes (screws into a stud of the wall) to give either a little friction to the movement of the overhead arm or to lock it securely in one position. Last, taper the three sides of the block with either the table saw or 12-in. disc sander.

This wall mount block can be left plain but is a natural to carve as a modern "African" wall mask. Carve any face desired with a steel cutter in the vertical drill press, as explained in this book under WALL MASKS. Supporting oval-headed screws become the eyes of the mask.

For the lamp itself, you can purchase various modern dropcord lamps complete

FIGURE 17



"PULL-UP" WALL LAMP

ADJUSTABLE IN HEIGHT AND SWING. OVERHEAD ARM AND COUNTERWEIGHT OF ALUMINUM TUBING. WALL MOUNT OF WALNUT OR BIRCH.

FIGURE 18

WALL MOUNT BLOCK

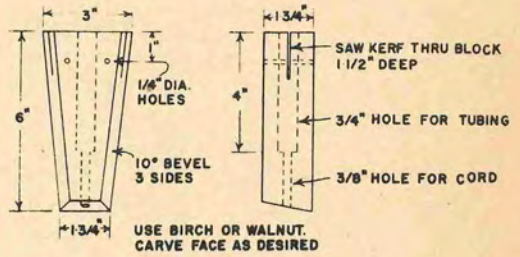


FIGURE 19

COUNTERWEIGHT

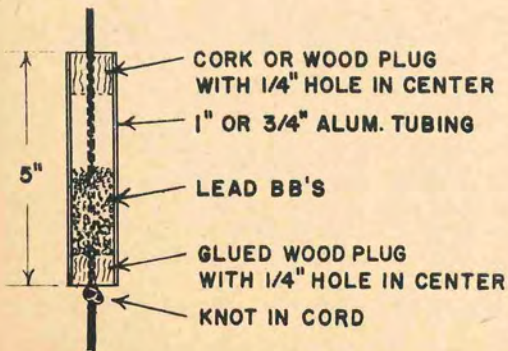
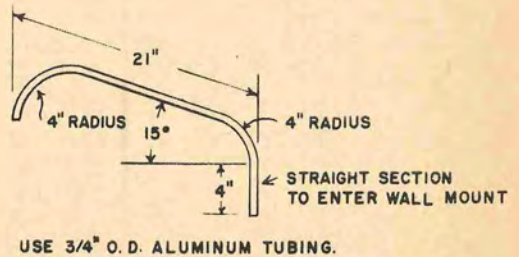


FIGURE 20

OVERHEAD ARM



with fixtures. An excellent type not shown are those with shallow inverted bowls of metal and a smaller reflector bowl below the bulb. Or you can assemble your own hanging light from inexpensive items obtained at the dime store. What is needed is an overhead light without glass parts, with a reflector to shade the bulb from below and with the switch at the top.

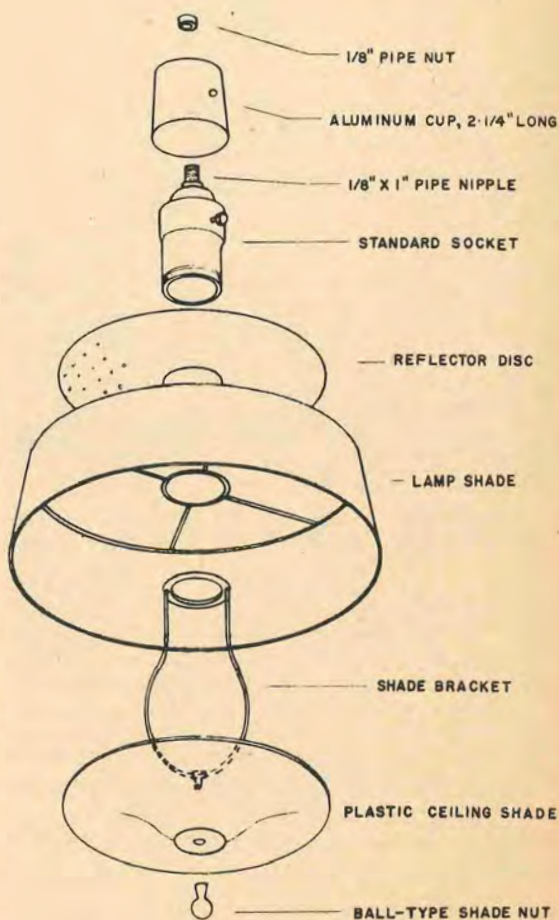
Choose a shade that has a $1\frac{1}{4}$ -in. opening in its wire frame, one made to screw to the larger, bulb end of an ordinary light socket. The shade is best fairly shallow, as in Fig. 17. Obtain a shade bracket that also screws to the larger end of the socket. A reflector disc of perforated aluminum sheet is next cut to about 1 in. less in diameter than the top opening of the shade, and a $1\frac{1}{4}$ -in. hole is drilled in its center with a wood expansion bit, Photo No. 16. Place the reflector disc over the large end of the light socket, then screw on the lamp shade, to the end of the threads of the socket or past them, and then screw on the shade bracket. As shown in Fig. 21, the disc and shade are held down against the shade bracket by a metal cover over the light socket. Covers for this purpose are often available; if not, make your own from a small aluminum drinking glass or cup obtained at the dime store. Cut the cup down to $2\frac{1}{4}$ -in. length and bore a $\frac{5}{8}$ -in. hole in its end and a $\frac{1}{4}$ -in. hole in the side for the switch knob (which unscrews to insert). A fixture nut on a short $\frac{1}{8}$ -in. pipe nipple in the upper end of the light socket holds all down tight against the shade bracket at the bottom. To the bottom of the shade bracket, an inexpensive plastic ceiling light shade is attached by a decorative shade nut—the pull or handle.

The counterweight gives the lamp a smooth up-and-down movement via the lamp cord passing through the overhead arm and wall support. Use a 5-in. length of 1-in. or $\frac{3}{4}$ -in. aluminum tubing for the counterweight and fill its bottom end with a $\frac{1}{2}$ -in. long wood plug glued in place. The upper end is closed with a snug, but not glued, cork or wood plug. A $\frac{1}{4}$ -in. hole is needed through both plugs for the lamp cord, easiest drilled in place as shown in Photo No. 17. The lamp cord passes through the counterweight, which can be positioned at any height on the wall by a half hitch in the cord underneath. After fully assembling the lamp, loosen the top plug and fill the counterweight with just enough lead BBs to counteract the weight of the lamp.

For the lamp cord, it is best to use a zip type or other that has an outer covering of cloth. The rubber or plastic-surfaced cords will not slide smoothly. •

FIGURE 21

PULL-UP LAMP, ALL PARTS
FROM DIME STORE



NOTES AND KINKS

... gadgets, tricks and short cuts that are sure to make your multi-purpose power tool operations easier, more economical and efficient.



Level wobbly table legs by sanding, using quill feed dial stop and tool in the position shown.

THROUGHOUT this book, the author's intent has been not only to show specific examples of modern furniture that you can build but also to show methods and tricks that may be of value when you construct any piece of furniture in your workshop. Here are additional notes that may help on other projects, kinks and details of professionals and home craftsmen. . . .

Leveling Table Legs

One of the most troublesome times for a professional or amateur furniture builder is when leveling the four legs of a wobbly table. This may be on a new piece of furniture or on an old piece that has teetered for years—in either case, the wobble is a cinch to eliminate by the following method:

Position your multi-purpose tool as a vertical drill press and place its table fairly low. Attach the 12-in. disc sander to it and simply place the table being leveled on the drill press table to sand the legs down to equal lengths!

You should use the quill feed dial stop,

thus automatically cutting all legs to equal lengths. If the legs flare or slant in any way, the drill press nevertheless cuts at the correct angle so their ends will rest flat on the floor. The large drill press table has enough area to support one end of a fair-sized coffee table. With a large dining table, you can place the table top on the floor directly below the drill press.

Use a medium paper on the sanding disc and make light cuts. If the table is already finished, protect its top by a piece of cardboard or cloth between it and the drill press table or floor.

Casters, Too

You can also use the above method to drill vertical holes in table and serving cart legs for installing casters. Best to use an auger bit in the drill press, rather than a twist drill which may burr the work.

Splinters on Hard Plywoods

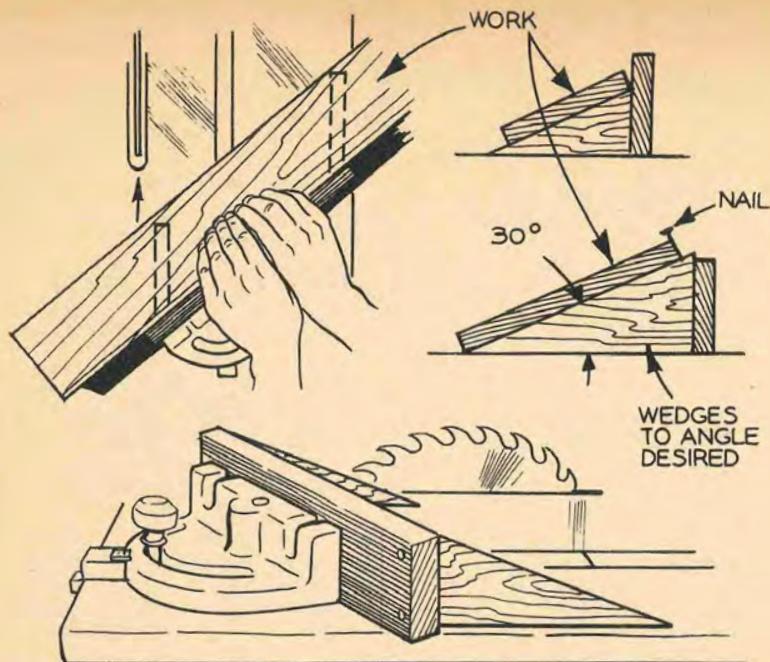
When constructing furniture of oak plywood, craftsmen often run into a piece of the plywood with an oak outer veneer that will splinter along the saw line, no matter if a planer or crosscut blade is used and no matter how sharp it may be.

The splintering will be eliminated or greatly reduced by placing a strip of cellulose tape over the saw line and sawing through it. Feeding the work slower than usual into the saw will also help.

Simplified Compound Cuts for Picture Frames

Downright surprising are the complications of the cuts necessary for the corners of a modern shadowbox picture or mirror frame. For instance, if you want a shadowbox frame that flares out at the usual 30 degrees, you do not miter its corners with a 45-degree setting on the miter gauge and a 30-degree tilt on the saw table. Instead, you cut with the miter gauge at $63\frac{1}{2}$ degrees and the table tilted to $37\frac{3}{4}$ degrees, the odd angles computed or looked up in a table. And both angles change with any greater or less flare to the frame and really get complicated when the frame has more than four sides.

All this can be eliminated by the simple



jig shown, which consists of two scrap blocks cut at the 30-degree angle (or other flare desired). These are screwed to the wood extension of the miter gauge and the work is laid on them, held up against the miter gauge to be parallel to it.

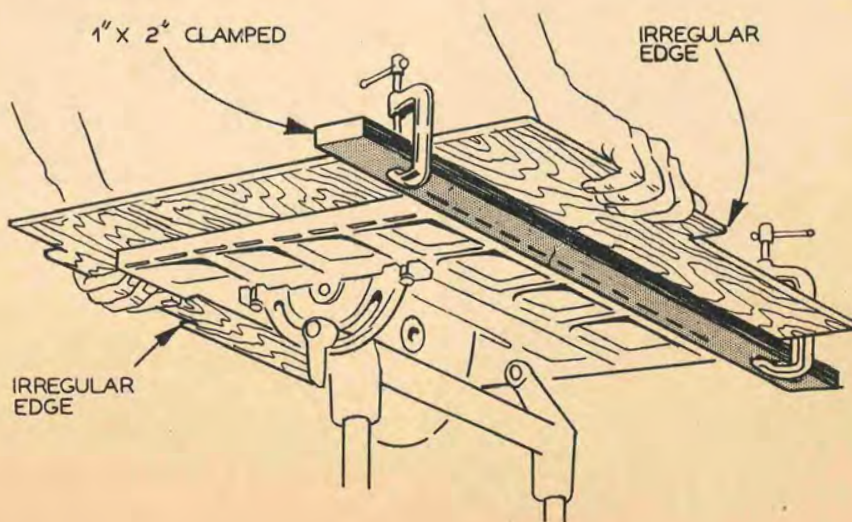
Thus, the work is cut while at the angle it will be when assembled, and you simply cut it at the regular 45-degree miter with the saw table level.

If the framing is quite wide, simply make the two triangles large enough to support its full width and place a nail or screw near the upper corner of each triangle to keep the work parallel to the miter gauge.

Squaring up Irregular Panels

As shown in the construction of the tables under **SERVING WAGON & TRIANGLE TABLES**, a straight board clamped to the underside of a large panel of plywood gives a good way to cut the bulky piece on a diagonal. The board rides along the edge of the saw table, serving as a rip fence for the width of the work.

The same method also will do the opposite—that is square up the irregular sides of any large odd-shaped panel of plywood or hardboard you may have on hand. The position of the guide board is determined by the amount of edge to be cut off.



Refinishing Hardware

Just a few weeks ago, a professional cabinetmaker told the author that he had trouble obtaining a modern satin finish on certain types of brass hinges and drawer pulls and could only obtain it with polished brass. His answer was to use a soft wire brush in the drill press to buff the polished brass to a satin or dull finish. But the brush didn't get into corners. So he chucked a small $\frac{1}{8}$ -in. bolt in his drill press and secured a small ball of steel wool to the bolt with two nuts and washers. At moderate speeds, the steel wool worked into almost every corner and buffed rather than scratched as it did when used by hand.

And to do the opposite:—You can give dulled hardware a high polish with a cloth buffing wheel and Tripoli or rouge. These abrasives, Tripoli especially, cut very minutely and can be used on plated as well as solid hardware. For the corners, a good trick is to take an ordinary pipe cleaner, bend it in the middle, twist the ends together and chuck them in your drill press. The loop of pipe cleaner is used with Tripoli or rouge, as a tiny cloth wheel, and can be twisted or bent to any shape desired to polish corners, screw holes, grooved designs, etc.

The steel wool and pipe cleaner kinks can be used in either the horizontal or vertical drill press positions. Best to use the wire brush or buffing wheel in the horizontal position—where bits of metal or polishing compound will be thrown down

Steel wool on small bolt or pipe cleaner in drill press make refinishing of hardware a simple task.

toward the floor. Always wear goggles when buffing with a wire brush or buffing wheel.

Removing Pencil Lines

When you have pencil lines to remove from a completed piece of furniture before varnishing, you will find that a large pencil eraser works better than sandpaper. Sanding seems to work the graphite deeper into the wood.

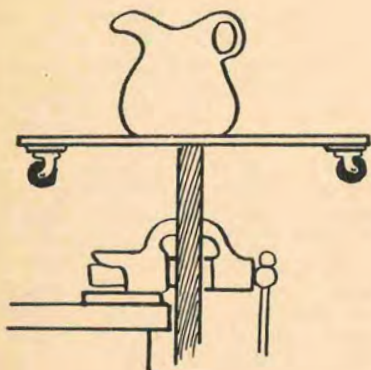
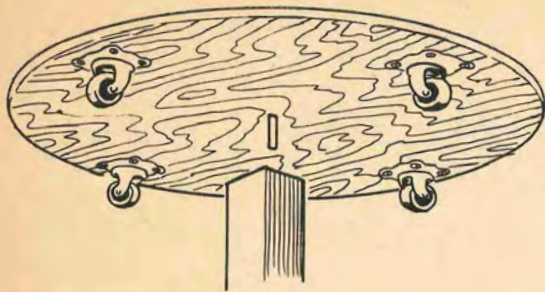
Large Turnings

A fair amount of modern furniture utilizes large discs for table tops, oversize serving cart wheels and the like. Usually, these are of $\frac{3}{4}$ -in. plywood and, although they can be turned outboard on a lathe, it is not to be recommended. On anything over 15 inches in diameter, a safer and better job is obtained by using the 12-in. disc sander, as shown in various projects in this book.

The speed and danger present in an outboard turning is sometimes difficult to realize. The author recently watched a professional cabinetmaker turn a 4-ft. plywood disc outboard on a lathe. The rim speed of the large turning was far too high, even with the lathe at its slowest speed, and so a helper was flipping the motor switch on and off to reduce the speed, an awkward and unsatisfactory procedure. The professional had to constantly watch that his lathe chisel, always wobbly on a floor-stand tool rest, was not caught and jerked from his hands. Splintering of the face veneers of the plywood became a problem for the same reason. If he had had a sanding setup like the Shopsmith's, the cabinetmaker definitely would have used it, sawing or jigsawing the disc to approximate shape, finishing on the 12-in. disc sander. And the job would have had a smoother edge.

As shown in this book, you can pivot-turn any large discs with the 12-in. disc sander, by centering the work on a $\frac{3}{8}$ -in. bolt in the threaded hole of the miter gauge bar, or by a nail or screw through the work and into a scrap board clamped to the saw table or extension table. If a hole through the center of the work is not desired, cut the nail or screw off short and drill a $\frac{1}{4}$ -in. deep blind hole in the bottom of the work to receive it. Still another way is to set the lathe tailstock cup center in the middle hole of the top of the rip fence and lock the rip fence on the extension table. The work then can revolve on the cup center and is supported up close to the sanding disc by the saw table.



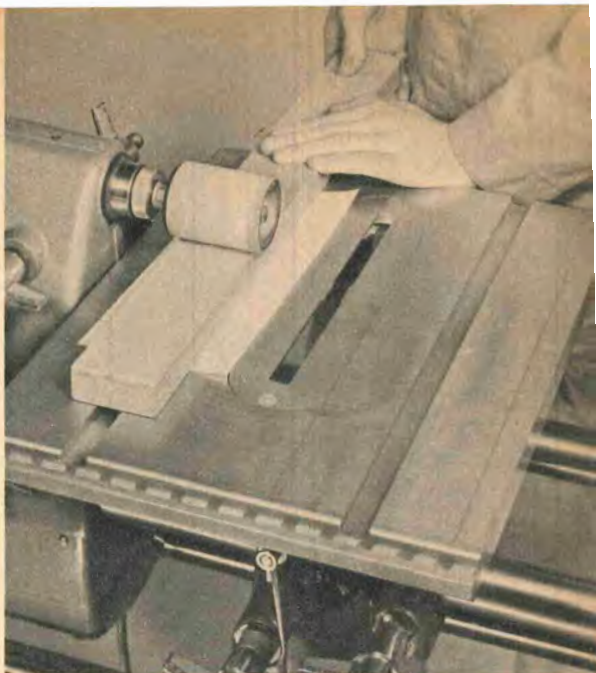


Turntable for Spraying

A turntable is a very handy thing to have available when you have a spray gun and are spray-lacquering or otherwise spray-finishing your new furniture. With it, you can turn the work as well as sweep with the gun, and thus can most easily obtain an even coat—and the air hose never drags across the job.

The only thing needed is a revolving disc of 24- to 30-inch diameter. For larger jobs, a board or two placed on the disc will give extra width. Pivot-turn the disc on your 12-in. disc sander of plywood or hardboard of any thickness on hand or of ordinary boards nailed together with slats. Screw four small furniture casters to the underside and drill a hole in the middle for a bolt or large screw to secure the turntable to a stand of some kind.

When spraying small objects, use the



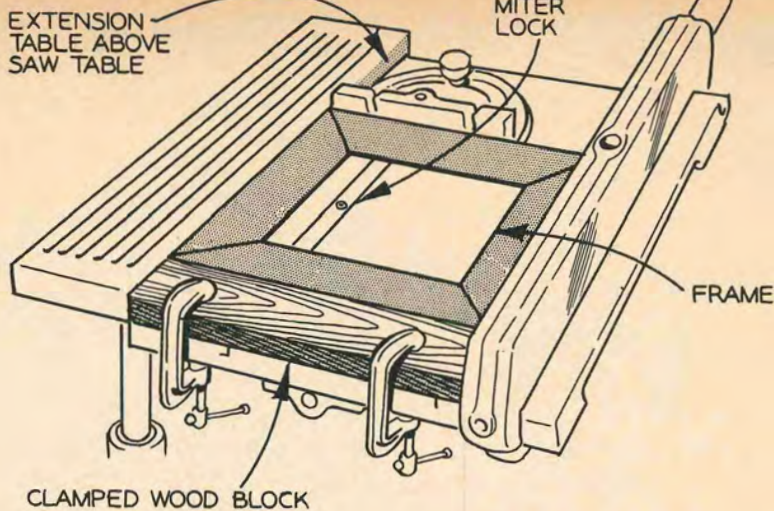
Above. Raise work for second side with paper or cardboard under it when jointing on drum sander.



turntable on a workbench or stand, anchored by the bolt or screw in its center. This will eliminate stooping and enable you to spray underneath any edges of the small job. When spraying large objects, simply use the turntable on the floor.

Jointing on the Drum Sander

If you do not have an accessory jointer and are using the 2¼-in. drum sander to smooth both sides of a board, here is a way to speed the second pass. Set the saw table to sand the first side, making the pass from the rear of the table as is done here. Then, instead of making the adjustment to set the table up enough for the drum to contact the second side of the work, simply place a sheet of smooth paper or thin cardboard between the work and the table. Then feed through as before. The thickness of the cut varies with the paper's thickness.



Glue Press

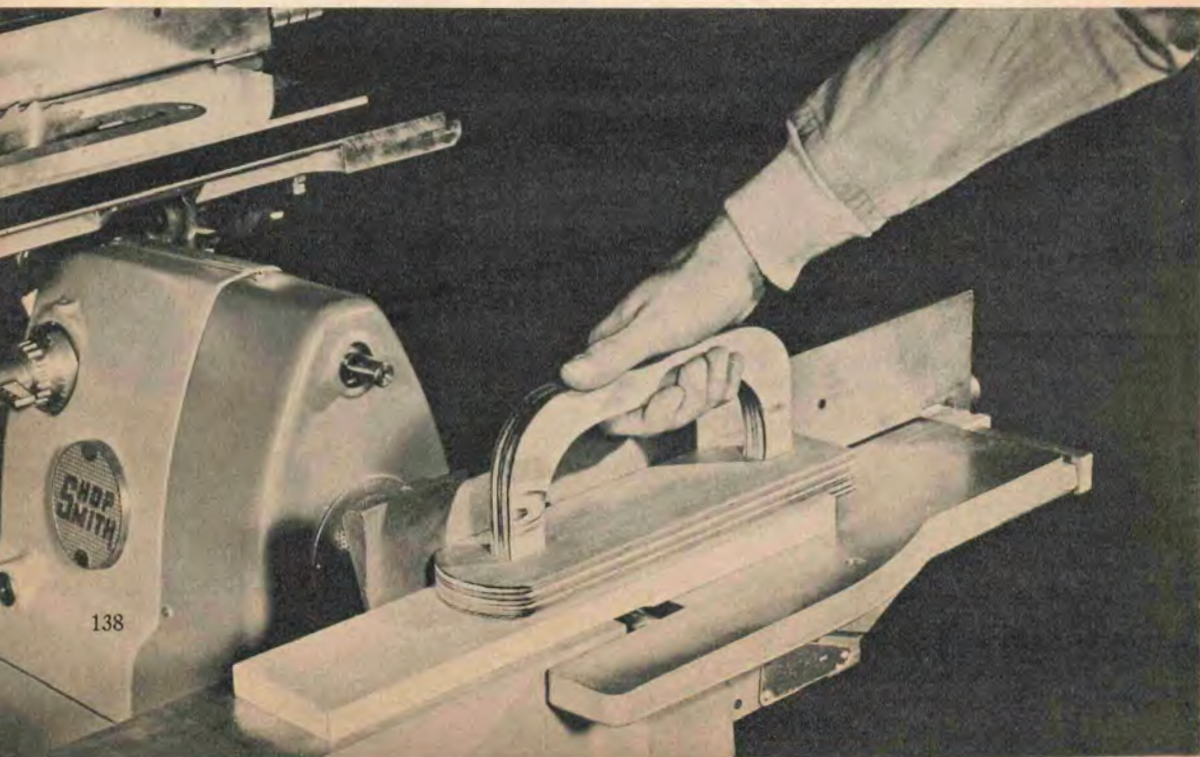
The quill feed of your multi-purpose tool will serve as a handy and adaptable glue press for a wide variety of furniture-making projects such as bench tops, chopping blocks, etc. One method is shown in this book under COFFEE BENCH with the tool as a horizontal drill press and with the quill feed pressing the glued work against a wood block clamped to the extension table. Use a block, rather than your rip fence, because the quill feed will exert surprising pressure.

For small work such as gluing two flat pieces of plywood together, set your multi-purpose tool in its vertical drill press posi-

tion. Attach the 12-in. disc sander to the headstock and use it to press the work down against the table.

For picture frames and the like, the illustration gives a unique method. Set the extension table about 1 in. higher than the saw table to back one side of the frame being glued. Clamp a wood block to the rear side of the saw table, then place the four parts of the glued picture frame in position, with a sheet of waxed paper between the wood and saw table to prevent excess glue from adhering to the table. The rip fence is pushed tight against one remaining side and clamped down. The miter gauge is pushed against the other and is

Cleat on push stick below catches end of work, keeps fingers clear of tool at point of greatest danger.

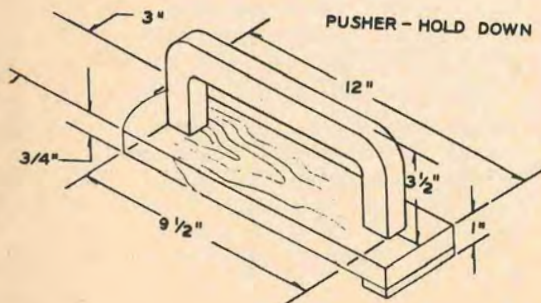
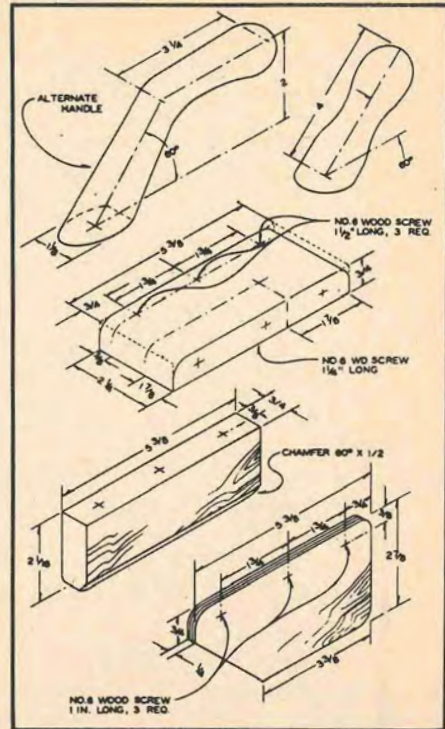


secured via the Allen screw on its bar or a C-clamp. If the picture frame is wide, you can use the miter gauge's wood extension to bear more evenly on that side. If additional pressure is needed, use the quill feed of the headstock against the loosened rip fence. With good miters, you will need no nails, screws or other fasteners on the glued joints.

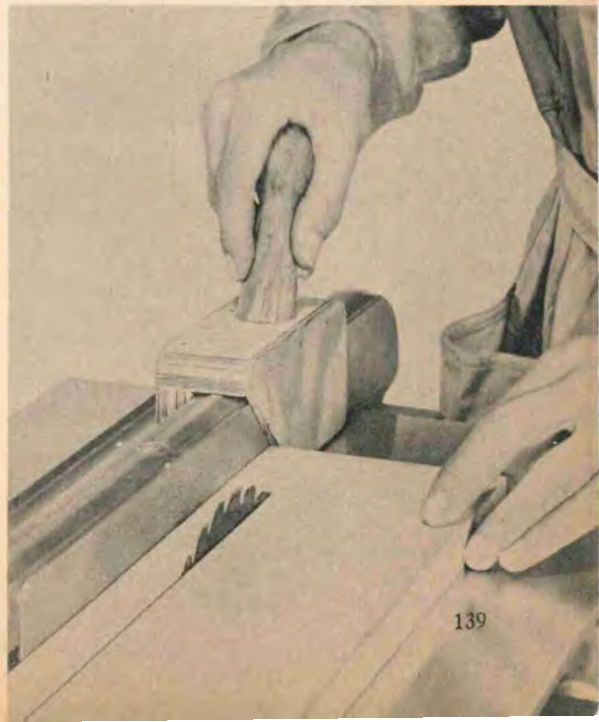
Two Push Sticks

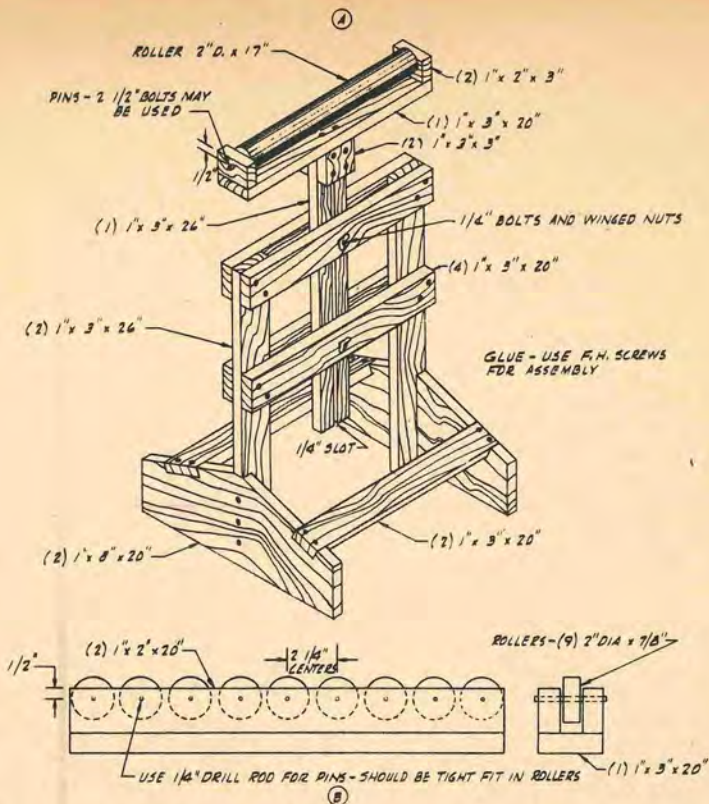
Here are two proven push sticks that require only odd scraps of material from the waste box and which constantly will be of use on your power tool. The first is for the rip fence—to keep fingers away from the saw blade on narrow ripping cuts and the like. It straddles the fence and its handle can be a turned knob, as shown, or a short length of dowel, or a round wooden door stop.

The second is a pusher and hold down for safety when rabbeting and dadoing $\frac{3}{4}$ -in. or thinner stock on the table saw and for surfacing and rabbeting similar stock on the jointer. As shown, the pusher has a small cleat on the rear end to catch against the back end of the board being run—in other words, the pusher is used at the end of the work where there is most danger of fingers near the tool. Some craftsmen and professionals prefer to eliminate the cleat and to glue a sheet of sandpaper to the bottom of the pusher—so it can hold down and push at the start or middle of a board as well as at the end.



Pusher, right, straddles rip fence, is ideal for narrow cuts. Handle can be knob, dowel, door stop.





Smooth Crosscutting

If you have a long and very heavy board for a large bench or the like that needs to be trimmed square at the ends, you may find that its weight on the extension table of your saw gives considerable friction and makes pushing the board evenly past the saw blade a difficult job. A good answer is to lay three or four ball bearings or small marbles in one of the shallow grooves of the top of the extension table and to lower it enough to level the balls with the top of the saw table. Gliding over the balls, the heaviest board will move smoothly and evenly for the cut.

For less extreme cases, a hard auto wax or paraffin rubbed over the saw table and extension table reduces the friction and enables the work to move smoothly.

Dadoing with Regular Saw Blade

When your need is for only one or so rabbets or dado grooves the length of a board, it is probably faster to use the regular saw blade than to change over to a dado blade. Don't move the rip fence to widen the cut on successive passes; instead, advance the blade with the quill feed, thus obtaining far greater ease and accuracy in the setting.

If you wish to duplicate the groove on another board, set the quill feed dial stop

when making the first groove. You will also find that either the regular blade or the Magna single-blade dado cuts much better in plywoods and hardwoods than the multi-blade type of dado.

Adjustable Floor Stand

If you continually have to rip long boards or sheets of plywood, a floor stand is a very handy thing to have around the shop. It is a help, too, when crosscutting extremely long boards or heavy 4 x 8 panels of plywood for it serves as a second extension table out from the table saw's opposite end.

The proven stand shown in the drawing adjusts in height for any job and is sturdy enough to support genuine timbers. Any common lumber on hand can be used throughout its construction. Shown on the stand is a 2-in. diameter wood roller, which is the best type for ripping and satisfactory for crosscutting. The alternate roller top shown is better for crosscutting; it consists of nine discs, 7/8 in. thick, cut from a 2-in. turning. If you do not care to do the lathe job for either type of roller, simply end the stand with the 20-in. crosspiece below the roller and surface this with two 1 x 20-in. strips of tempered hardboard, which will be quite slippery when waxed. Another sliding top is obtained by tacking on two strips of hair-type weatherstripping. •

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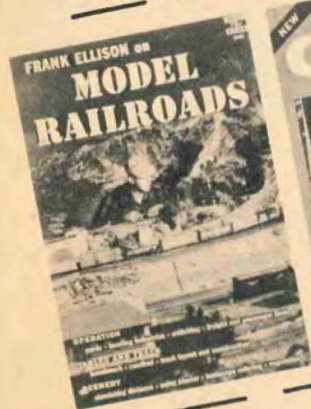
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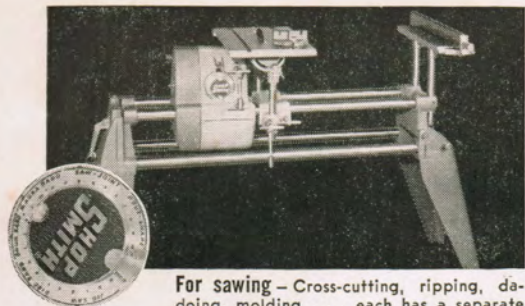


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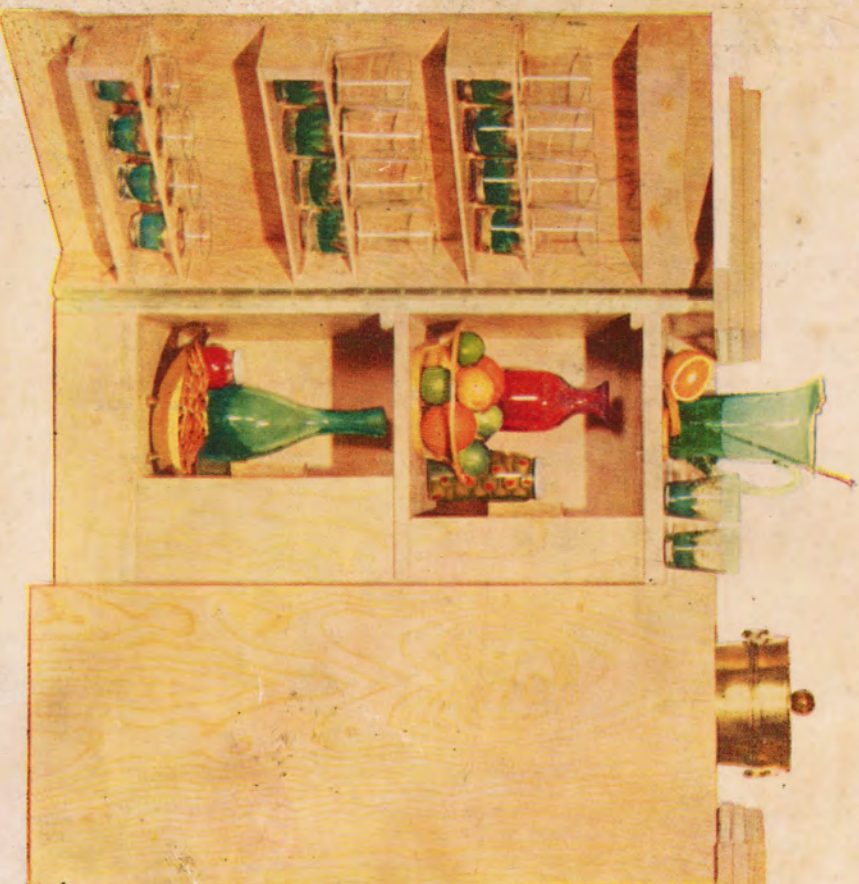
—often less—to use quality Weldwood plywood. Make your current project with the material experienced craftsmen use . . . see your lumber dealer soon.

You can make these fine Weldwood cabinets with Easi-Bild patterns

Cabinet-bar at left is roomy and rolls on casters for **servicing** anywhere in living

room, terrace, or playroom. Fashioned from beautiful birch Weldwood it makes a handsome piece of furniture as well. Easy-to-follow directions in Easi-Bild patterns make assembly simple and fast. Weldwood rift oak record-book cabinet below looks right anywhere in your home. Simple, modern lines make it good-looking and easy to construct.

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FOR PATTERNS send 50¢ for cabinet-bar pattern #189

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